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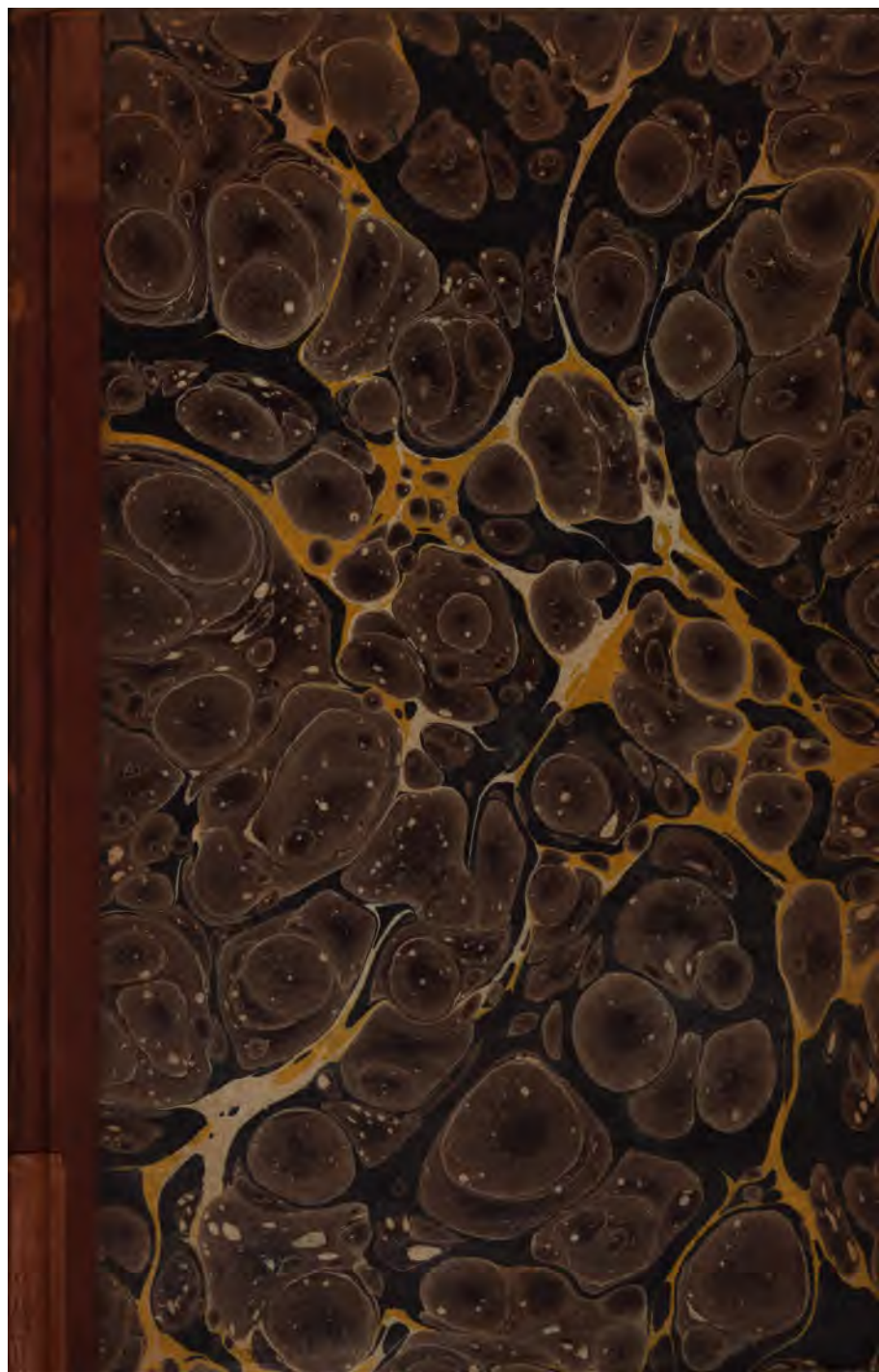
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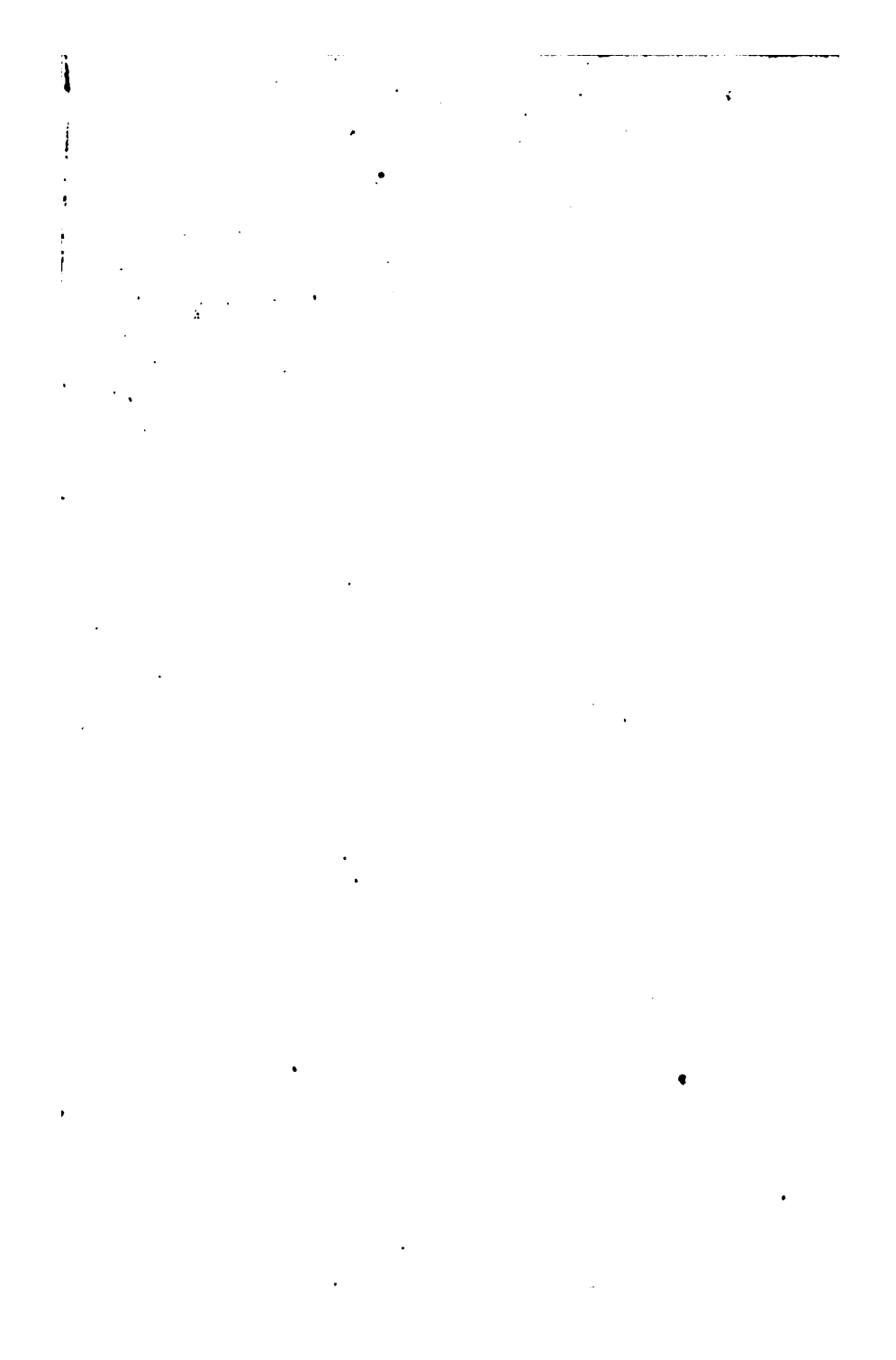
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HYGIÈNE:

OR,

THE HAND-BOOK OF HEALTH.

In Two Parts.

THE FIRST PART BEING ADDRESSED TO MEMBERS OF DISTRICT BOARDS
UNDER SIR BENJAMIN HALL'S "LOCAL MANAGEMENT ACT,"
MAGISTRATES, CLERGYMEN, ETC.

THE SECOND PART TO THE PUBLIC IN GENERAL.

BY
HARRY WM. LOBB, L.S.A., M.R.C.S.E.

Salus populi suprema lex.
Μεγα Βιβλιον, μεγα κακον.

PRICE TWO SHILLINGS.

LONDON:
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1855.

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TO

JOHN SIMON, ESQ.

AND TO

CHARLES DICKENS, ESQ.

THIS LITTLE VOLUME

IS CORDIALLY

Dedicated,

BY

THE AUTHOR,

AS A SLIGHT TESTIMONY OF HIS ADMIRATION OF

THEIR CONTINUED EFFORTS

IN THE ADVANCEMENT OF SANITARY REFORM.



PREFACE.

I HAVE been long expecting a popular work on Hygiène ; but as no one has come forward to fill the vacancy, this little work is published as a stop-gap until a better should appear. I shall make no apology for the large extracts that I have made from the authors I have consulted, as I do not pretend to produce an original work, but a useful one. The works of Drs. Pereira, Dunglison, West, and others, are addressed to the profession, and are not intelligible to the general public, on account of the technicalities they contain, and their style altogether. The present volume is intended for readers of all classes, containing the rules found most conducive to health, by the most eminent physicians, past and present.

"Prevention is better than cure," is so old a proverb, and has become so musty, that, except on rare occasions, it is never acted upon ; but if it were, in reference to health, our epidemics would be less in frequency, and milder in character, and we should gra-

•

dually remove from the land (by the improvement in the health of the parent), that frightful curse—hereditary disease.

Health, like money, produces itself; the best preservative from disease is health. A man in perfect health might walk through a pestilence unscathed, whereas his weakly neighbour would be sought out by it, and carried off.

With the materials at my command, I might have compiled a work of twenty times the size of the present volume, but that has not been my aim. A condensed, concise, and I trust clear exposition of the subject, has been the object endeavoured to be attained by

THE AUTHOR.

GLOUCESTER TERRACE, HYDE PARK,

November 9th, 1855.

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HYGIÈNE,

OR

THE HAND-BOOK OF HEALTH.

Part the First.

GENERAL HYGIÈNE.

“Mens sana in corpore sano.”

HEALTH may be lost, and sickness induced by numberless causes, many under our own control, many under the control of our neighbours, and many over which we have no control. In this part I shall consider those causes over which we, and our neighbours combined, have control; causes resulting from the congregation of numbers forming a city, and which, if left to themselves, produce pestilences, and every form of disease. In legislating upon the improvement of public health, the most important subject to be considered is the salubrity of the habitations of the people, for without this is done, all other attempts must eventually prove failures;—strike first at the root of an evil, then lop off the branches at your leisure.

Mr. Dickens, in some admirable articles in his *Household Words*, has traced out the great benefits conferred upon a great number of poor people, by the purchasing of a court full of most wretched houses (the Augean horrors of which are, I trust, unparalleled, although I fear, I may say know, not) by a society

of gentlemen headed by the Earl of Shaftesbury, who, after cleansing these houses from abominations, the collections of years—amongst which a ton of bugs appears to be the least foul,—have had them repaired, water-closets and sinks added, water supplied, and various other excellent improvements. The rooms are let at various small rents according to their accommodation, on the stipulation that not more than one family should inhabit each room, and none sleep on the stairs or passages; formerly, they were crammed every night by vagrants. The effects of all this are most gratifying,—to the philanthropic mind particularly so: firstly, as a speculation it pays; the tenants pay their rent with regularity, and cheerfulness, and express their gratitude for the change: 2ndly, the morality of the neighbourhood is improved, necessarily so,—as now the sexes are separated; formerly there was little or no distinction: 3rdly, the health of all is bettered; this is more particularly noticed among the children, the mortality amongst whom was alarming;—it is now much lowered, in fact below the average, and they may be seen running about the court with clearer complexions and straighter limbs. Such is one example of the great good that may be done by improving the dwellings of the poor.

Now, I should like to ask why this is an exception. Why in the middle of the nineteenth century, in the most enlightened country in the world, amongst the most charitable and philanthropic of people, as also the richest, this should be brought forward as an example; why it should require demonstration at all? It is an axiom, and yet, strange to say, all the most

subtle reasoning, the most urgent appeals—even the positively bare-facedness of the question, will not arouse owners of house property, (whoever they may be,) to lay out a small sum, to produce, as is demonstrated, a good return in money, and what is still better, a large return in health, morality, and good conduct amongst the lodgers. Now, how is this to be done? Mr. Dickens states that it has been found to answer better in a pecuniary way, to improve old houses, than to build new ones: this may be true in many cases, but not so in all; because in many of the suburbs we may see, as in this parish, rows of small, mean houses, which no repairs would ever improve,—the rooms are too small. In the first place, these houses should be razed, and upon their site lofty piles might be erected, consisting of a series of large, well-ventilated apartments, suited for the requirements of the class of people inhabiting the neighbourhood. As in the model lodging-houses, there might be common kitchens, and dining halls, for bachelors, a reading room, and other modern improvements which have been found to answer so admirably. However, this is principally addressed to owners of such houses, who can do what they like with their own, and who, if in each individual case these advantages were laid before them, might be induced to carry out such measures; but where legislation can step in—where there is any power vested in the authorities, then they should come forward and see that it is done. It is their duty; for, as I have said before, the first step to public hygiene,—and not only that, but to every real improvement, political and moral, amongst the hum-

bler classes, is to improve and make healthy, the habitations of all men. Let a woman have a clean, well-ventilated, roomy apartment to live in; let her have a place where she can do her washing without producing the proverbial

“Row about the house
Upon the washing day,”

which is caused by want of space, and let there be decent accommodations attached to the premises, and she will take a pride in keeping the place clean and tidy; for there is an innate propensity in the female mind to order. The cottage of the farm labourer is proverbial for its cleanliness, and it may be equally so in London. If the husband of this woman finds that he has a nice room to return to after work, and that he does not by his entrance fill up the only vacant corner; that he does not fall over a wash-tub, or into a cradle, or any other of the disagreeables which may be expected by want of space; if he meets a welcome which a cleanly hearth can alone give him, and a wife contented with herself, and therefore with him, he will not wander into a public-house, as is now too often the case, and come home at any hour, drunk, perhaps to pound his wife to death, as is now apparently the every-day custom among a certain class; but will remain at home, giving his wife and children the benefit of his society, save the money he would otherwise have spent, and by rendering his children a good example, perhaps save them from ultimate ruin.

What is required to produce an apartment, or apartments, which shall answer all the requirements of a class, who can only afford to pay from two to five

shillings a week rent, and yet have the maximum of sanitary advantages?

There is little difficulty in answering this question theoretically, although there is much practically. In the first place, it is almost impossible to overcome the conflicting local interests; parties are always rising to oppose any improvements, from some narrow-minded fear that they will interfere with some petty interest: there is therefore required some compulsory central power, which can overrule any such opposition, either by compensation, or otherwise. Sir Benjamin Hall, in his recent Act, has made a very excellent step in this direction, which will doubtless be found to bear its fruits. Still, more is required, and more must be done, ere the question I have propounded can be answered, and carried out to its full extent.

To produce an apartment to pay the landlord, it must be one of many;—there must be therefore many similar. To be of varying rates of rent, some must be larger than others;—there must be classes of apartments to do this; there should be varying sizes, as they increase in height: we should therefore have the larger rooms on the basement, and decrease in size as we ascend. Say the house is three stories high,—the basement will be 5s. per week, the first floor 4s.; and so on until the top floor, or attics, 2s. per week. For 5s. and 4s. per week, two rooms might be allowed; for the other two sums, one room, of varying size.

THE SITUATION OR VENTILATION of the *house* must be first considered: There should be a free current of air both front and back; there should not be less than twenty feet free space before and behind

every house intended for the habitation of human beings, and this should not be obstructed at either end by buildings, walls, &c.; that is to say, there should be a free circulating current between the lane, alley, or court in which the house is situated, and the adjoining street, or open space;—this is actually necessary. The house itself should have passages running at certain intervals directly through it, so as to allow the air from one side to freely communicate with that on the other; the staircases and landings should be roomy. Having provided for the ventilation of the house, the next duty is to ventilate each apartment: the present plan is to allow the air to enter either at the door or window, and to rush up the chimney; this is only partial, and tends to create draughts, than which nothing is more fatal, causing more illness than even the want of ventilation altogether: a draught of cold air upon a heated, enervated body may produce a common cold, rheumatism, pleurisy, lumbago,—in fact, almost anything, instantly, —whereas the effects of want of ventilation are slow, although not less sure to produce disease. If, as I have pointed out, the passages are properly ventilated, with a constant, flowing current, a few holes should be left all round the top of the room, communicating with the passages; the heated air will naturally flow out; the fresh air should be admitted from the top of the window, either by patent bricks, communicating with the external air, or by perforated glass window-panes. Small imperceptible currents will be constantly entering above the heads of the inhabitants, and by the law of diffusion of gases

will properly ventilate the whole room, without the least draught being observed: by this simple means, therefore, the ventilation of the rooms and of the house is provided for, and removed from the control of the inhabitants, requiring no attention, being self-acting. The lowest stories of a house we know to be the most affected, during the prevalence of infectious diseases: this is on account of the weight of the atmosphere, when loaded with moisture and malaria, which, as a fluid, will flow into underground apartments, and also to a certain height, above the level of the pavement. It has been noticed that the number and severity of cholera cases diminish according to the relative altitude of the house above low-water mark; it is the same with all infectious diseases. A warm, moist, and still atmosphere is favourable to this class of diseases, and on these conditions the lower part of a house is sure to suffer first; and the less free ventilation there is, the more will the ova be fostered, and gladly remain in a nidus, where they flourish with the greatest luxuriance. We may assert, relative to the three forces—warmth, moisture, and a still atmosphere,—that moisture attracts, and retains the ova; that a still atmosphere prevents their removal; and that heat increases their virulence, or activity of reproduction, when implanted in the nidus most suited for them,—man. Therefore, on no account should cellars or underground rooms be inhabited, or rather slept in during the prevalence of any epidemic. The ingress of fresh air to rooms on the ground floor should not be from the level of the floor, but elevated a certain height; therefore the most favourable situation is the

top of the window, if there is an aperture, for the escape of heated and vitiated air above, on a level with the ceiling. In building fresh houses for the poor, these laws should be taken into consideration, and the improvements should be insisted on by those in authority. Cellars should be kept as such, and be used only as receptacles for coals, &c. There is no objection to underground kitchens, if they are used for that only, and not slept in,—such as in model lodging-houses, for instance; but in a house composed of separate, independent apartments, the cellars should not be habitable, as it would only lead to abuses.

We must now proceed to DRAINAGE: Supposing the main street-sewer to have been created—for with this we have nothing to do, as no house in London should be built until the main drain to the nearest trunk-sewer is formed,—supposing, then, this main drain to be in existence, we have to lead from each water-closet a pipe to this drain. The situation of water-closets is important, for much harm arises from the obstruction caused by placing water-closets, or rather privies, at the end of a court or alley, common to the inhabitants, instead of one or more in each house. In the first place, it does not allow for that decency which should be the characteristic of all civilized society; 2ndly, it obstructs ventilation, and retains effluvia; and 3rdly, they are seldom sufficient in number for the wants of the inhabitants. Privies with cesspools, should entirely be done away with; there should not be one within five miles of Charing Cross; therefore of these I shall not speak: but of water-closets there should be an ample supply—one

to every eight, or ten of the inhabitants,—say one to every two families; these should be well ventilated, separately, and should not enter into the general ventilation of the house, but should communicate with the external air by a separate vent of their own, high up in the wall, for escape of vitiated air, and one over the door, for the ingress of fresh air; a good supply of water should be connected with each, which if not under the control of the inhabitants, should flush the pipes well at least every day.

Before leaving this subject, I must beg to call the attention of all in authority to the poisonous effects, to the suicidal plan of making the Thames, from which we obtain our chief supply of water, the main sewer of this mighty metropolis: I know that this question is now under consideration; I know that it has been so for years; I know that magnificent plans have been laid before Government; and I also know that there are two great objections to these being carried out,—the first, the difficulty of disposal of the sewer contents; and, secondly, the enormous expense. The first is a real difficulty, for if immense intercepting trunk-sewers, running parallel with, and on each side of the river, be built, where are they to empty? if lower down the river, the benefit would not be commensurate with the expense. Until, therefore, some one will come forward and let us know what is to become of the sewage matter, the Government cannot interfere in the matter; but surely some of our great men—our chemists, our architects, and engineers, could together devise some system of removal, and general manuring of districts, around London, or even the

shipment of it in a dried state, as guano, to a distance. This is a great metropolitan, almost a great national question, and in spite of the all-engrossing theme—the war,—should meet with due attention from the Government and City authorities.

The next most important subject is the SUPPLY OF WATER. This is so extensive a question, that we can hardly find room here for even the enumeration of its heads. The poor are so thoroughly acquainted with the value of a daily and sufficient supply of good water, that they would willingly pay for an extra supply, even by pinching in other ways. Improved cleanliness and health are the immediate effects of a supply of water to houses hitherto without it; and, in fact, without water we cannot have drainage, so that a daily flushing of the pipes and sewers is necessary for the removal of filth. There is no reason, except from the obstinacy of water companies, that there should not be a constant supply of pure water, on high pressure, to every house, at a very small expense; but the old companies are so powerful, and in some instances so extortionate, that very little is to be done with them, except we have some assistance from Government. Besides, the water as at present supplied in London is not so pure as it might be; much of it is taken from the Thames, not above the reach of the tide, and sent to our cisterns very imperfectly filtered, containing animal and vegetable matter to a very great extent, as may be easily proved by testing, and the microscope. From the evidence collected by the Health of Towns Commission, it appears that the water supplied to the

houses, in most towns, is insufficient for the wants of the inhabitants, and in very few is there pressure enough to allow of its use being applied to the extinction of fires without the aid of the fire-engine. In Philadelphia the houses have, day and night, a constant supply of good water; the housemaid, by the aid of a hose, can wash the pavement and front of the house, by the force of the power used; and by the application of a longer hose, a fire can be put out in any room immediately, by the inhabitants themselves. Such should also be the case in London; Hampstead and Sydenham are surely elevated enough for the purpose. In houses for the poor, there should be a sink and tap to each floor, with, if not a constant supply, at least a daily one of six or more hours; there should be a cistern to the water-closets, filled daily, self-acting if possible. Landlords who would do this, would pay themselves in a very short time, by the improved class of tenants, by their better health, and therefore ability to pay, and with more cheerfulness.

PURE WATER SUITABLE FOR DRINKING should contain no animal or vegetable substances; the various salts found in Thames water are not hurtful, except to a very few suffering from disease, who should drink distilled water. In river water, several forms of *confervæ* are found, as also a few *animalculæ*, but not to the extent usually shown publicly, by the aid of the oxy-hydrogen microscope, these animals being collected out of ponds surrounding London, as they require stagnant water, and collections of vegetable matter, for their nourishment. To purify water from these objectionable substances, the usual mode is to pass it through sponge,

sand, and charcoal. There are a great many excellent filters manufactured, but owing to their expense, they are not in general use. I propose, therefore, that a glass filter be made on the most simple possible principle, being merely a bent glass tube, filled with sand and charcoal. The sand, from experiments made by Signor Matteucci, frees to a certain extent the water from salts; it also catches and prevents passing all larger impurities; and from the water being forced up through the sand, the mechanically suspended matters subside, and do not pass over. The charcoal (I use vegetable, in preference to animal, on account of the slightly disagreeable flavour at first imparted to the water by the latter,) has the property of abstracting odorous and organic colouring matters from water; this is accomplished by the oxygen contained in the pores of the charcoal combining with these substances, rendering them inert: thus all impurities are arrested from passing over. The filter is to be hung upon the tap, and the water allowed to trickle from it, keeping the funnel part full, so as to have a certain amount of pressure. The purified water is to be collected from the spout for use. I think if this filter could be manufactured for two shillings or half-a-crown, that a very large sale might be effected; and that the poor, for whose advantage it is intended, would duly appreciate the value of such an article, as an addition to their comforts.

In reference to PUMPS, I must extract Mr. Simon's remarks, in his Report to the Court of Sewers, for the year 1852-53; merely premising, that all London pumps are not equally to be condemned, as some of

them yield the most beautiful water. The only way to prove the purity, is by occasional testing, which may be very easily accomplished. "The subject of water, in its district relations, ought hardly to be passed, without a word of caution, as to the use of pumps within the City. I need hardly inform you, that every spring of water represents the drainage of a certain surface, or thickness of soil, and that, such as are the qualities of this gathering-ground, such must be the qualities of the water. You will, perhaps, remember that, in my account of one celebrated City-pump, which sucks from beneath a churchyard, I showed you ninety grains of solid matter in every gallon of its water. In virtue of that wonderful action which earth exerts on organic matter, the former contents of a coffin, here reappearing in a spring, had undergone so complete a change as to be insusceptible of further putrefaction; the grateful coolness so much admired in the produce of that popular pump chiefly depending on a proportion of nitre which has arisen in the chemical transformation of human remains, and which, being dissolved in the water, gives it, I believe, some refrigerent taste and slight diuretic action. Undoubtedly, this water is an objectionable beverage in respect of its several saline ingredients; but my present object in adverting to them is rather to illustrate an anterior danger which they imply. Their presence indicates a comparative completion of the putrefactive process, effected by the uniform filtration of organic solutions through a porous soil. This very important influence, exerted by the earth on various organic infiltrations, is referred

to in the text only under one point of view—only as it occasions the deterioration of land-springs in urban districts, and renders their water unfit for consumption. But the subject has another equally important side. Such springs, having their water laden with nitrates, represent the continuous removal of organic impurities, which otherwise would contaminate the air. The evil of spoiled springs, therefore, while it necessitates for every urban population, that their water supply shall be artificially furnished from a distance, has great countervailing advantages.”

“A given organic soakage will cease to vitiate the atmosphere by evaporation, in proportion as it gravitates to lower levels, and undergoes those chemical changes which accompany filtration through the soil. Hence it is evident, that for the healthiness of inhabited districts (where extensive soakage of organic matters is almost invariable), it becomes most important to maintain, or by artificial measures to accelerate, this down-draught through the soil; and the reader will scarcely need to be reminded, that in those improvements of metropolitan sewerage which it is a chief object of this Report to advocate, complete provision for the continuous drainage of soil is implied as an essential part. Let that soil have frequent fissures in its substance, or let its thickness be scanty in proportion to the organic matters to be acted on, and the water, imperfectly filtered, would run off foul and putrescent. Now, this risk more or less, belongs to all pumps within the City of London. They draw from a ground excavated in all directions by sewers, drains, cesspools, gas-pipes, burial-pits, &c. The immense

amount of organic matter which infiltrates the soil does, undoubtedly, for the greater part suffer oxidation, and pass into chemical repose; but in any particular case, it is the merest chance whether the glass of water raised to the mouth shall be fraught only with saline results of decomposition—in itself an objectionable issue,—or shall contain organic refuse in the active and infectious stage of its earlier transformations. Some recent cutting of a trench, or breakage of a drain in the neighbourhood, may have converted a draught, which before was chronically unwholesome, into one immediately perilous to life. Such facts ought to be known to all persons having custody of pumps, within urban districts; and it ought likewise to be known, that this infiltrative spoiling of springs may occur to the distance of many hundred yards. For a fact strikingly illustrative of this, I am indebted to my colleague, Dr. R. D. Thomson, Lecturer on Chemistry at St. Thomas's Hospital. At Liverpool, in three wells which he examined, distant severally 760, 800, and 1050 yards from the Mersey, he found the water brackish from marine soakage,—containing four to five hundred grains of solid matter per gallon, and totally unfit for consumption."

Gas is a most economical and excellent light; it is also the cheapest mode of procuring heat, and for cooking purposes. In building new houses for the poor, if gas stoves and gas-light were generally used, there would be an immense saving in expense, as well as economy in space, time, and trouble. I have not seen this brought forward by anyone, therefore it is only a hint to manufacturers and others to produce

such stoves and apparatus as might be required by the needy.

A dry, warm, equable atmosphere, is most conducive to health, and if blocks of houses could be artificially warmed, many of the present diseases arising from damp and cold, especially scrofula, and the diseases of childhood, might be prevented. The mode of doing this, is to have in the basement an oven heated by gas, and communicating with the external air; this will feed itself. This air being heated, is to pass up by a flue to every room in the house, the communication being in the wainscoting, and being under control by a handle, which communicates with a series of flaps, rising and falling at will; the heated air may be allowed to enter a room in any quantity, or may be shut off altogether. The ventilation by holes, at the top of the room, communicating with the external air, is in this case absolutely necessary, as otherwise the air would soon become stifling. There is a method of warming houses introduced by Messrs. Stuart and Smith, of Sheffield, which appears to be very effective. Their Patent Gill Air Warmer diffuses a constant stream of pure, fresh, warm air into the building, without the possibility of anything injurious occurring *from the apparatus being overheated*. It may be seen in constant operation at Messrs. Chubb's lock warehouse, in St. Paul's Churchyard. A gas-burner, the consumed air and smoke arising from which pass through a pipe to the external air, is now made, and is I believe the invention of Professor Faraday. This is a very great improvement, preventing dirt, and the destruction of furniture, pictures,

books, &c., also keeping the room at the usual temperature. Gas is yet in its infancy; eventually almost everything in a house requiring light or heat will be the effect of gas. In the use of gas, the necessity for ventilation at the level of the ceiling is apparent.

And now we enter upon a new subject,—LOCAL LEGISLATION BY THE PARISH AUTHORITIES. There is no doubt that business is better and more economically done by centralization than by allowing every small parish or district its own legislation. For, in the reports of the Commissioners it is continually being brought forward—that the bar to improvement is the clashing interests of different petty local administrations. In paving we find this continually in the streets of London: there are so many small boards, that by jobbery continue to keep up a heavy rate for paving, that in the adjoining street, perhaps, may be only half as much. There should therefore be one large district, over which the vestry have the whole control; and by this means the rates may be kept down to the minimum, with a maximum benefit. The powers placed in the hands of the parish by Sir Benjamin Hall's new Bill are much greater than they formerly were, and if found to work well, will no doubt be increased;—having the Board of Health to appeal to, (which appeal should be final,) would render the working of the Act of much greater advantage; and if Dr. William Farr's proposition—(that wherever the death-rate in a district should exceed 17 in a 1000 per annum the Act should be made compulsory)—were carried out, an incalculable amount of good might be

done. I shall now say a few words on the duties of the local authorities.

THE PUBLIC PARKS have been called most fitly the lungs of London. Most jealously therefore should these parks be watched; no encroachment should be attempted, without the vigorous protest of the neighbouring inhabitants, backed by the whole community. Growing as London continues to do, spaces should be left for the formation of parks, or at least large open grounds, for the convenience and amusement of the people. Land is most precious, I know,—but health is still more so: the people require pure air; they must therefore have it, at any cost. In the City, this is difficult—almost impossible, (although we have the example of the Emperor Napoleon, in Paris, before us, and it is stated—(the Society of Arts is at present taking evidence upon the subject,)—that in spite of the enormous outlay, the property is so improved, that by the increase of rents a very good dividend is realized); but in the suburbs they have nothing of this sort to bring forward, and therefore this suggestion should be attended to by the local authorities in an increasing district. To see the numbers of people that take advantage of a fine Sunday afternoon (after having been to church in the morning, as it has been ascertained a great proportion do), to flock to all the parks and outlying green spots,—such as Hampstead, Blackheath, Greenwich, &c.,—and revel in the purer air, greensward, and budding trees, is an invigorating sight, and fit to joy the heart of any philanthropist who is not too narrow-minded to allow people to be the best judges of their own enjoyment, but would

cramp them down to certain narrow paths, that suit his own pharisaical ideas. I am not speaking of an ignorant, besotted people, who, if allowed to follow their own courses, would wallow in drunkenness (as I understand some of the farm labourers in the eastern counties would,) through their ignorance, but of an enlightened community, who read,—who are aware of the progress of affairs,—who have spirit to come forward and express their feelings in a manly and peaceable way, where a thoroughly well-meaning, though deluded sabbatarian would legislate for a body, with whose minute anatomy he is totally unacquainted, except theoretically. The people then should have the use of parks or open spaces, not only for occasional recreation, but for the continual aëration of the district; for here a large reservoir of fresh air may be collected, and used for the ventilation of the adjoining streets, alleys, and courts. As we live and as our health depends more upon the air we breathe than upon the food we consume, the importance of this point must be apparent to every one; but as, unfortunately, individuals have very little power to prevent over-crowding of space by houses, this subject must be left to “the powers that be.”

PUBLIC BATHS AND WASH-HOUSES.

These are of inestimable benefit to the working-classes, and should be increased to a very large extent, as also be made self-supporting. The advantages derived by the poor are so enormous, that they would willingly avail themselves of them, and pay sufficient to prevent any loss to the parish by their

erection. The evidence collected by the Committee of the Goulstone Square baths and wash-houses may be advantageously examined by all vestrymen; and the immense amount of good derived from them, sanitarily and otherwise, should be taken into account. Mr. Simon, in his letter to the Lord Mayor, relative to the proposal that the City should take the management and responsibility of the public baths and laundries at Goulstone Square, says—"Every year of an extended sanitary experience has made me feel more deeply that institutions of this kind are necessary for the health and for the civilization of the poorer classes; and it has been with extreme regret that I have witnessed, however inevitably, the almost indefinite postponement of so important an object." Mr. John Bullar, in another letter, addressed to the Lord Mayor on the same subject, says—"The Committee have shown to the satisfaction of the country at large, that cold baths at 1*d.* each, and warm baths at 2*d.* each, and means for washing, drying, and ironing clothes, at from 1*d.* to 2*d.* an hour, can, when united with threepenny and sixpenny baths of a superior class, be supplied to the working-classes on *remunerative* terms." In the year 1854-55 these baths gave bath and washing accommodation to 201,282 persons. "The totals of the bathers and washers in the metropolis up to the end of the year 1854, are 5,251,805 bathers, and 1,616,576 washers—by whom it is estimated that the clothes of more than 6,500,000 persons were washed." To show the desire of the people to take advantage of such an establishment, I shall extract the following table from Mr. Bullar's

letter, remembering at the same time that this was a model and charitable undertaking, and therefore, as regards the expenses, cannot be taken as an example of economy :

YEAR.	NUMBER OF BATHERS.	NUMBER OF WASHERS.	RECEIPTS.	WORKING EXPENSES.
1849	108,082	—	£1406	£1558
1850	137,519	14,702	2060	1908
1851	156,311	43,462	2707	2353
1852	161,772	44,717	2896	2197
1853	156,010	42,589	2976	2474
1854	156,158	45,124	3036	2829
Totals...	875,852	190,594	£15,081	£13,319

This statement is sufficient to show the great benefits that may be derived by the poor from establishments of this kind, as also their readiness to avail themselves of them. The proposal for the establishment of public baths at Edinburgh was first commenced by the working-classes, affording, say the Commissioners, "a strong and a gratifying proof of their eagerness to obtain the means of greater cleanliness, and their due appreciation of its advantages."

Cleanliness leads to happiness, and is one of the greatest aids to health ; and a poor family who are able to keep themselves clean are sure to be industrious, moral, and religious ; for I have noticed, during the time that I was medical officer to the Aldersgate district of the East London Union, that those families in which cleanliness was the rule, were not only more healthy, requiring less attendance during epidemics, but were much better conducted, and thus rose above their surrounding neighbours, taking a higher position.

EXTRAMURAL BURIALS.

In spite of the assertion of Archdeacon Hale,—that a body, when buried, is a source of benefit to the living—(I suppose only when they die “in the odour of sanctity,”)—I do most fully disapprove of intramural burials; but as this I believe to be the opinion of every one else in London but Archdeacon Hale, I think I may leave the subject as it is, especially as the new churches erected in this neighbourhood have no burial-grounds attached, and the old ones are being closed.

THE REMOVAL OF NUISANCES.

What is a nuisance? At the present day this appears to be a most difficult question to answer. One would think that any trade or calling producing within a certain radius—according to which way the wind blows—so overpowering an effluvia as to prevent windows being opened and make the passers-by sick, might be fairly designated a nuisance to such neighbourhood. But no; although the inhabitants complain, evidence is brought forward to attempt to prove, not only that such a trade is not a nuisance, but that it is a positive benefit to the community! that there is less disease within its range! that epidemics are not known! &c. Now this may be all true, but yet merely accidental. If any epidemic were to arise, I have no doubt, other things being equal, that such epidemic would rage in such a neighbourhood with particular virulence; although, not being acquainted with the facts of this particular Islington nuisance, I cannot judge. At any rate, the

officer of health of the district should minutely examine evidence, judge for himself, and his verdict should be immediately acted upon. There is another so-called nuisance, about which there is much conflicting evidence,—

THE SMOKE NUISANCE.

Smoke is wasted fuel; one would think, therefore, that it would be the interest of all to consume this smoke; but it does not appear to strike those who make use of furnaces in this light, for they will not, without being compelled, abate their smoke; one reason for this is, that it is expensive to make alterations in the furnaces. True; but this is very soon repaid by the decrease in the use of fuel. But is smoke a nuisance? As creating a great dirt it is. Without doubt half the washing that is done in London is caused by the deposition of blacks, which is concrete smoke. In this light it is a nuisance. But is it noxious to health? Of this I am not so sure. I think that much of the immunity of London from fever and other infectious diseases is owing to the antiseptic properties of the carbon floating in the air, especially near the surface. Finely-divided charcoal has the property of decomposing, by oxidation, effluvia and other gases. Dr. Stenhouse, in his letter to *The Times*, of the 22nd of November, 1854, says—"Charcoal not only absorbs effluvia and gaseous bodies, but especially, when in contact with atmospheric air, rapidly oxidizes and destroys many of the easily alterable ones, by resolving them into the simplest combinations they are capable of forming, which are chiefly

water and carbonic acid. It is on this oxidizing property of charcoal, as well as on its absorbent power, that its efficacy as a deodorizing and disinfecting agent chiefly depends. . . . I am aware that some persons who admit the deodorizing properties of charcoal, deny that it acts as a disinfectant. I would direct the attention of such persons to the following statement of facts:—About a year ago, the bodies of two rats and a full-grown cat were placed in open pans, and covered by two inches of powdered charcoal. The pans have stood during all that time in my laboratory, and though it is generally very warm, not the slightest smell has ever been perceptible, nor have any injurious effects been experienced, by any of the nine or ten persons by whom the laboratory is daily frequented. Now, had the bodies of these animals been left to putrify under ordinary circumstances, not only would the stench emitted have been intolerable, but some of the persons would certainly have been struck down by fever or other malignant disorders. In the instance of hospital gangrene, we have to deal, not only with effluvia, but with real miasmata; and in many cases, patients who were rapidly sinking have been restored to health.” Now if this be true—and from what I have myself noticed I believe it to be correct,—the smoke floating in the atmosphere must be a real benefit. Every one is aware that for so enormous a city, London is very sweet, and in comparison with foreign towns particularly so; for as one of our poets has observed, Cologne is so very offensive, that it has a fresh stench for every day in the year; and Mr. Chadwick said, in answer to a question

of the Emperor's, that—"Paris is very beautiful above, but very foul beneath." London, then, may be indebted for its salubrity somewhat to its smoke; however, this is a vexed question, and we must not be dogmatic.

REMOVAL OF DUST AND OTHER ACCUMULATIONS.

There is great apathy both among the authorities and, more particularly, the inhabitants, respecting the removal of dust and other offensive accumulations. Why this is so it is difficult to understand, for our nasal organs point out to us their objectionableness; and yet without some active surveyor or officer ferrets them out, they may be allowed to remain an almost indefinite time. The Commissioners record that, in Manchester, "it has hitherto been found difficult to support the indictments, in consequence of the inhabitants who have complained not attending to give evidence; and that at the Court Leet held in October, 1840, fourteen cases of public nuisances were dismissed, from want of evidence." If the duty of taking such proceedings were imposed on a public officer, such failure of justice could scarcely occur. The dust contractors are bound to call on every house twice a month, to remove dust, and yet it is not done,—the men will not remove it without beer-money; and they do not always get this,—therefore the dust accumulates. It requires an officer to enforce the penalty in these cases; for the inhabitants will seldom come forward, unless pressed to do so. A public inspector, therefore, is actually necessary to superintend this duty. The dust should be removed weekly, in all poor

districts, and all accumulations immediately conveyed away, upon their discovery, and penalties enforced, where possible.

SLAUGHTER-HOUSES

Should be placed under control; they should be frequently visited, with regard to their proper ventilation, removal of refuse matter, and sufficient supply of water for cleansing purposes. It would of course be better if the slaughter-houses, as in Paris, were removed from the metropolis altogether. This, however, I am afraid we shall not be able to effect; but their supervision should be constant and perfect. Much of the nuisance arising from them might be thus most materially alleviated.

PIGSTIES

Are an abomination that should not be allowed in this metropolis, on any consideration; and the keeping of smaller animals, such as rabbits, fowls, &c., should be discountenanced as much as possible; for in crowded houses the more animal emanations there are, the worse, of course, will be the ventilation; and fowls are not only very offensive, but generate vast quantities of disgusting insects, which are one of the plagues of London.

All stables and cow-houses should be under the control of the authorities, and frequently visited; as, although not objectionable when clean, they are so when neglected.

CLEANSING AND WATERING OF STREETS.

This, in the better class of neighbourhoods, is very efficiently done; but in the smaller streets, courts, and

alleys, is not as it should be. Vegetable refuse is thrown into the public thoroughfares, and allowed to rot, with dead cats, until the day comes round for their removal, in the meantime impregnating the atmosphere with effluvia. If the narrow courts were daily flushed with water, (of course supposing them paved and drained), the inhabitants would take example, and, instead of adding to the filth, would endeavour to keep their court from pollution, and knowing that it was somebody's duty to cleanse it, would second his endeavours. The streets and lanes should be also daily swept and cleansed.

At Aberdeen, where the local act requires the appointed scavengers to clean the foot-pavements, and the whole of the streets, closes, courts, &c., every day, under a penalty, this work is done at a profit of £600 a year to the city; and in other towns of Scotland similar examples are found. In Hull, the inhabitants have found out that they can profitably dispose of, and the farmers that they can profitably collect, with great regularity, the refuse from the houses, even in the courts and alleys which are inaccessible to carts. This is removed without any aid on the part of the local authorities. The courts and small streets are described as bearing a marked appearance of cleanliness; but this latter could not be cited as an example, as scavengering should be under the surveillance of the authorities, and not left to private individuals.

PAVING.

Every court, alley, lane, and street inhabited by the poor should be properly paved, as it affords

such convenience for cleansing; and the duties in relation to paving and draining (that is the surface draining), and underground drainage, should be combined and placed under one jurisdiction.

LIGHTING.

This in most cases is efficiently done, where it is not, extra lights should be added.

SUPERVISION OF MARKETS.

As there is, of course, much refuse in all markets, especially vegetable ones, there should be an inspector to superintend the daily removal of such collections.

In closing these observations with regard to refuse matter, I wish to observe, that these masses are not removed to a sufficient distance from the metropolis; in fact, they are generally collected in some vast heap in the immediate neighbourhood, becoming a centre for infection and putridity: they should, on the contrary, be removed (if possible) by rail or canal to some convenient distance, where they may be sorted and disposed of, without injuring the health of the neighbourhood.

VACCINATION.

I have very few words to say upon Vaccination. The present Act appears to me to be almost useless; a fresh Act, therefore, is required—one that should most stringently bind every parent to have the child vaccinated before it is six weeks old. Small-pox is a disease that we have the power to totally eradicate. Why is it not done? The question must be answered by our rulers.

PUBLIC INSPECTOR OF ADULTERATIONS.

From the various works lately published upon food, and its adulterations, we have an immense amount of evidence, showing that many things that we are accustomed to eat, drink, and relish, are slow poisons. It is not in the sphere of this little work to go very deeply into the subject, but there are a few articles of vital importance upon which we all live, that should be brought under the notice of the authorities.

BREAD

Contains alum in more or less amount; this may be easily detected by introducing a clean steel knife into a new loaf, when, being left for a short time, crystals of alum will adhere to the steel; this salt is very aggravating to the dyspeptic, and causes that disease in many cases. Potatoes and rice, although frauds upon the purchaser, are not deleterious. The cheap German yeast as now sold, is of very inferior quality; being often in a state of decomposition when purchased, the bread soon turns acid.

MEAT

Should be rigorously examined, as from my own personal knowledge, diseased, and cattle that have died naturally, or that have been slaughtered anticipating death, are sent up by unscrupulous farmers to salesmen equally unscrupulous, to be sold in the dead-meat markets.

BEER.

There are various ingredients used for the adultera-

tion of beer; the only one that is highly objectionable, and in fact poisonous, is the "cocculus indicus." This should most stringently be put down; it should be interdicted altogether from entering the country. It is never used in medicine, and is only used for the adulteration of beer, and by poachers for intoxicating fish—two very bad practices. Pereira says, "Notwithstanding the severe prohibitory statutes against the employment of cocculus indicus in brewing, I have reason to believe that it is extensively used, but being employed in the form of a solution of the extract, the form is not easy of detection." Morrice on brewing, gives full directions for its use, "It gives an inebriating quality which passes for strength of liquor." Beer, being the Englishman's peculiar drink, should be free from poisons, if not from impurities. We look for this from the government: there are heavy taxes on malt and hops, we should therefore be protected from being poisoned in our beer; the only way to do this is to make cocculus indicus contraband.

MILK.

What is milk? An analytical chemist being asked the question, and judging from specimens of London milk, would find great difficulty in answering it. There is no doubt that it is most extensively adulterated, that it contains all manner of impurities, from chalk to brains inclusive: that as sold to the purchaser, in very many cases, it is no more milk than it is cream. Now, as many children live on milk, it is most important that they should have it pure; milk therefore should be strictly supervised.

These are the only four articles of diet I shall bring forward; but as these are the most important, and, combined with vegetables, what we more or less live upon, every one will see the importance of having them in a pure, unadulterated condition. I should therefore recommend that competent public inspectors should be appointed, whose sole duty should be to continually visit the shops of tradesmen, and minutely examine into the purity or rather non-poisonous state of the articles sold. There are many substances improved by mixing with other ingredients; this of course should be allowed, as long as they are not poisonous, and are articles that may be eaten or drunk without harm to the consumer.

WINE,

Although not a necessary article, may now be almost classed under the head of medicines, for it is most extensively recommended by medical men of the present day. Such a thing as a pure wine is unknown to the general public; the tricks of the wine-merchant are so extensive, that such an article is not to be found. They say they have to suit the palates of their customers, so they brandy, and mix, and vat, until we find French reds at 32s. the pipe, come out as superior old crusted port at £36,—and this done in the docks. There must be “something rotten in the state of Denmark” for this to be allowed. I should therefore advise all buyers of wine, to go to a good house, and give a good price for it; it will save many a headache and attack of dyspepsia. And the poor who can afford to buy a bottle of wine, when recommended.

by the medical man, should have an order from him, and be allowed to buy it of the parish, at some central station, at the wholesale price.

PUBLIC AMUSEMENTS.

This point is too little considered by the legislature. The public require, and must have relaxation of some description, and if it is not found for them, they will find it for themselves. I have before mentioned the utility of public parks; beyond this there is required some intellectual evening's amusement for the humbler classes. The theatrical representations are now much improved in their tendency; but still, there is something beyond this required of a cheaper form. The literary and scientific institutions, now so popular, have supplied a great void; but a news-room, with public lectures on the natural and other sciences, conveyed in the simplest language, so as to be understood by the most ignorant, with the price of admission 1*d.* or 2*d.*, is, I think, a boon that would be accepted as one of the greatest by the poor. The amusement and culture of the mind is as necessary to a healthy state of the body as almost any other single recommendation I have mentioned. Popular instruction, in an amusing form, is one of those boons that the poor seldom have the advantage of obtaining, but which, when they have, is seized with the greatest avidity.

By this means moral and even religious instruction might be gradually introduced; and by elevating the minds of the lower classes, would make them aspire to excel in their various callings, and then by the aid of savings banks alleviate their conditions most mate-

rially. Thus we should lower the poor-rates, and assist the poor at the same time; and there is no better preventive of disease than a happy temper, and a conscience at rest. Public amusements, then, for the body and mind, I consider to be the best and most advisable form of improving the general health, and alleviating the condition of the poorer classes; for a man that knows better would not live in the filthy holes in which we sometimes find him, he would know that accumulations of filth, impure water, foul air, are slow but certain poisons. Let these men, then, be publicly and at the same time amusingly instructed; let us have adult schools; but to fill them, there must be something beyond dry facts, to draw. I am certain that if one or two such institutions were opened in each parish, they might be self-supporting, requiring no assistance from the rich, or even from the parish, except encouragement; we should shortly find a marked improvement, morally and sanitarily,—that the public-houses would not find so many nightly loungers,—that the duties of the police would become easier,—and that the magistrates would be lightened of four-fifths of their work;—for four-fifths of the crimes committed in Great Britain arise from drunkenness, and *this* commonly arises from idleness,—from want of something to do; people go to the public-houses to meet their friends, to talk, to seek amusement, and there they are led to drink, and drown their minds in temporary madness. Instruct, and amuse the people.

THE PUBLIC CULTURE OF CHILDREN.

I shall make no apology to Mr. Dickens for abstracting matter from his article on "Infant Gardens," in *Household Words*, as I am sure no one will be more glad than himself, at the advancement of any benevolent object, especially one of such enormous importance as the improvement of the health, and education of children. "The child is father to the man;" let us then make the child strong in health, and good in character. How is this to be done? Poor mothers, who have to work to gain their daily subsistence, have no time to devote to the education of their children, and hardly even to their proper nursing,—flying to opiates to arrest their cries and wailings,—producing emaciation, nervous depression, and consequent death, or impaired vitality. On the child growing older, it is either left to the custody of an elder child in the street, to meet with any accident that may fall in its way, or it is sent by the day, to some woman who takes charge of such children. It never meets with any education, and when it gets old enough to go to the charity school, its baby character is already formed, in the majority of cases, on a bad model. If mothers were made aware of the real danger to which they occasionally subject their children, by the use of opiates, in various forms, they would, instead of flying to them, shun them as poison,—which to infants they are. Upon this head the Commissioners speak as follows: "Our attention has been particularly directed to the prevalence of a very injurious practice, of administering opiates to young children, calculated to in-

crease the effect of physical causes of disease, already pressing with great severity on the infantile part of the population. The habit thus introduced has become to an alarming degree prevalent, especially in the manufacturing counties, although it also occurs in rural districts to a considerable extent, and is not confined to infants suffering from disease, but is also extended to those in a state of health, in order to insure their more easy management when the mothers are absent from home. The administration of these drugs, is not confined to unlicensed practitioners alone, it is but too generally adopted by the parents themselves, and by those persons, under whose care infants are left during the hours when the mothers are engaged in their daily avocations." Physicians, and surgeons in extensive practice in the manufacturing districts, give it as their decided opinion, that this terrible practice is productive of much disease and death, and that the constitutions of those who survive the effects of the narcotics are, in many cases, ruined, and that the mental capabilities of such persons are materially impaired.

Frederick Froebel, a German—remembering how his young mind had been cramped for want of right encouragement and sympathy in his childhood, as also the ill-conditioned people whose disputes had been made part of his experience, the dogged children, cruel fathers, sullen husbands, angry wives, and quarrelsome neighbours, and how many men and women go about pale-skinned, and weak of limb, because their physical health during infancy and childhood was not established by judicious management,—thought

that it was just so with our minds, and that there would be fewer sullen, quarrelsome, dull-witted men or women, if there were fewer children starved, or fed improperly in heart and brain. To improve society, to make men and women better, it is requisite to begin quite at the beginning, and to secure to them a wholesome education during infancy and childhood. Strongly possessed with this idea, and feeling that the usual methods of education, by restraint and penalty, aim at the accomplishment of far too little, he determined to devote his entire energy, throughout life, to a strong effort for the establishment of schools, that should do justice and honour to the nature of a child. The whole principle of Frœbel's teaching is based on a perfect love for children, and a full and genial recognition of their nature,—a determination that their hearts shall not be starved for want of sympathy; that since they are by Infinite Wisdom, so created as to find happiness in the active exercise and development of all their faculties, we, who have children round about us, shall no longer repress their energies, tie up their bodies, shut their mouths, and declare that they worry us, by their incessant putting of the questions which the Father of us all has placed in their mouths, so that the teachable one for ever cries to those who undertake to guide it,—What shall I do? To be ready at all times with a wise answer to that question, ought to be the ambition of every one, upon whom a child's nature depends for the means of healthy growth. Very young children, can be trained successfully by no person who wants hearty liking for them, and who can take part only with a proud sense

of restraint, in their chatter and in their play. Take care that you do not exercise only a part of the child's mind or body; but take thorough pains to see that you encourage the development of its whole nature. The mind of a young child must not be trained at the expense of the body; every muscle ought, if possible, to be brought daily into action. As the child grows, the most unaccustomed positions into which it can be safely twisted, are those from which it will receive the most pleasure. He objects, during the first three years of life, to the child leaving its mother for an ignorant nursemaid, if she should have thought it worth while to prepare herself for the right fulfilment of her duties. Fröbel desired his infants to be taught only by women, as well educated and refined as possible, preferring amiable unmarried girls. He taught them by songs, and games invented for their use. The songs are associated almost invariably with bodily activity on the part of the child. The school must be held in a large room, abounding in clear space for child's play, and connected with a garden, into which the children may adjourn whenever weather will permit. Up to the age of seven, there is to be no book, no ink-work, but only at school a free and brisk, but systematic strengthening of the body, of the senses, of the intellect, and of the affections, managed in such a way as to leave the child prompt for subsequent instruction, already comprehending the elements of a good deal of knowledge. An English establishment conducted upon these principles may be seen in action, by calling on a Tuesday morning, between the hours of ten and one, on M. and Madame Ronge, 32,

Tavistock-place, Tavistock-square ; and a work with illustrations on the subject may be purchased, entitled *A Practical Guide to the English Kindergarten*. Such, then, is the plan of such a school ; the children may sleep at home, and be brought early every morning, and remain all day, the parents paying a small sum weekly : these should not be charity schools, but schools either under the fostering care of the local authorities, or of the State. Charity schools are very good, and they are nobly supported ; but they are not carried out upon a broad principle,—they do not do the good that an establishment of the kind I have mentioned can do. If the Government would only spend a third, upon the bodily and mental culture of the infant, of what they do upon the punishing and imprisonment of the man, we should be all the better for it, and money in pocket. Crime is the child of ignorance, ignorance of good. The people of the finest, and most noble-hearted nation in the world, only require to know better, and to be taught it in a kind and benevolent spirit, to leave off the beastly, disgusting ways which blot the history of the present age. To do this, we must begin at the root. Cultivate your children, and in nineteen cases out of twenty the fruits will be a good man. Punish your adults, and they fall from bad to worse ;—a man once within the vortex of crime sinks, and sinks to rise no more. I repeat—cultivate the health, the brain, and the morals of your poor children.

In the Health of Towns Commission, Second Report, *Local Reports*, vol. i. p. 122, we find these recom-

mentations:—"The most eminent medical witnesses concur in declaring, that it is by the careful observation of the causes of disease and mortality operating upon large classes of the community, that the mode and extent of their large operation may be ascertained, and the power of diminishing and preventing them be acquired. For this purpose the appointment of an officer, whose duty it would be to direct his undivided attention to such causes, would in our opinion be a public benefit, more especially to the poorer classes, and might be advantageously employed in making investigations into matters affecting the sanitary condition of the district under his charge. We therefore recommend that the local administrative body have power to appoint, subject to the approval of the Crown, a medical officer, properly qualified to inspect, and report periodically upon the sanitary condition of the town or district, to ascertain the true causes of disease and death, more especially of epidemics increasing the rates of mortality, and the circumstances which originate and maintain such diseases, and injuriously affect the public health of such town or populous district."

OFFICER OF HEALTH.

This is a most important office, and should be a constant one, and not, as is the case at present, merely called into existence on emergency, for then there is little comparatively to be done; the time for action is before any epidemic has arisen, and in some districts by judicious management, cholera has been wholly averted, and in others much alleviated. In

the City of London, under the judicious and masterly care of Mr. Simon, the health of the city has greatly improved. He says, in his Report for the year 1852-3,—"My comparison of the past five years with any considerable previous period cannot be as precise as I could wish, owing to the absence of circumstantial records for the time anterior to my appointment; but judging from such information as I can consult on the subject, I am induced to believe that the deaths, for equal numbers of population, are about 4 per cent. fewer than before your Acts of Parliament came into operation, and that the disproportionate mortality of children is decidedly lessened. Further impetus in the same direction will shortly be given by the removal of sanitary evils, already in fact or in principle condemned. The approaching institution of your extramural cemetery, and, I venture to hope, the translation of all slaughtering establishments to the site of your new Smithfield, will be important contributions to this effect." The duty, then, of the officer of health is to be continually on the look-out for abuses; to superintend the removal of nuisances; during the times of health, to periodically visit his district, examining into the sanitary welfare of the inhabitants, to superintend the visits of the various inspectors, to promote the erection of public sanitary institutions, pointing out the most desirable sites; to advise in reference to any districts insufficiently drained; to superintend the ventilation of public buildings; in fact, in every way within his power to foster the health of the inhabitants of his district. In times of pestilence, to unite with the parish me-

dical officers in house to house visitation, daily if possible; to superintend the proper supply of medicines and medical comforts; to organize a depôt for such materials, and to supervise their distribution. Such are the duties of the officer of health; which, if efficiently carried out, may be the means of saving hundreds of lives, and allow children, amongst whom there is now such an enormous mortality, to be brought up to man's estate, stronger, and with a better chance of average life.

Inspectors under the officer of health should be appointed, whose sole duty should be to visit under his direction every inspected house in the parish, to make enquiries, and personally to examine into the number of lodgers, the ventilation, cleanliness, drainage, water supply, dust removal, paving of yards, the existence, and consequent removal of nuisances, and the like; and tabular forms should be constructed for their use, which admit of this information being recorded and reviewed in the readiest manner. Week by week these should be examined, the report drawn up, and where the powers of the officer of health, or of the local authorities, can interfere, then the desired improvements should be enforced under the Act. Consequently, in each week there would fall due a certain number of sanitary works (relating to house-drainage, water supply, and the like), for which previous orders would have been issued, requiring them to be completed within a stated time; and on the satisfactory execution of these, it will be the inspector's duty to examine and certify. Thirdly, in each district there should be a certain rota of visitation

according to the badness of the spot, and its known liability to fall into filthy and unwholesome condition, requiring one set of houses to be seen weekly, another set fortnightly, another monthly, another quarterly, and so on.—A rota, varying from time to time with the changing circumstances of each locality; and out of this rota each week would supply a stated number of cases for enquiry, to which occasionally should be added a certain number of those establishments in which offensive occupations are pursued. Thus, in the large number of visits made weekly by the inspector, there would be a certain proportion of that more elaborate kind which involves an examination of the entire house; another proportion made for the sole purpose of seeing that previous orders have been executed; another proportion repeated at fixed intervals, simply to ascertain that houses once cleansed and repaired are not relapsing into filth, nor their works becoming inefficient. Another excellent suggestion is, that printed notices should be posted in various public positions in the parish, and in the courts and alleys, and renewed once a month, advising the careful maintenance of cleanliness in all houses, and inviting all persons who are aggrieved by any nuisance, or by any neglect of scavengers and dustmen, or by any defect of water supply, forthwith to make complaint at the vestry or to the district surveyor, or inspector, whose names and address might be subjoined. Secondly, that a circular letter should be written to all persons in parochial authority, also to the clergy, to the heads of visiting societies, and the like, begging them to communicate with the officers

on every occasion, when any local uncleanness or nuisance may come within their knowledge.

MORTALITY.

The various rates of mortality and the tables founded upon them are of the greatest interest to the professional man and to all classes. The lowest death rate hitherto attained in this country for a considerable population, during a term of seven years, has been fourteen in a thousand per annum; the highest rate is considerably more than double this amount; the difference between the two arising from superior sanitary conditions on the one hand, over inferior, and neglect of sanitary improvement on the other. The inquiries into the state of districts before and after improvement, have distinctly shown that increased facilities for the removal of refuse, in and about the habitations of the poor, have been rapidly followed by a marked improvement in the health, and by a reduction in the rate of mortality of the district. An instance of this kind was observed in Manchester, by ascertaining the amount of deaths in twenty streets, before and after their improvement, by which it was ascertained that the deaths immediately subsequent to the drainage and paving of the streets, were diminished more than 20 per annum out of every 110. This mode of exhibiting the immediate effects of structural improvement has been confirmed in other instances, and is cited in verification of the same results, obtained by estimating the mortality in improved and unimproved districts of a like population. This, with Mr. Simon's declaration, that the mortality of the city has de-

creased four per cent. per annum, after the late remedial measures, is quite sufficient to prove the utility, in fact, the imperative necessity of public legislative hygiene. During the attacks of cholera, the good effects of drainage and other improvements were most admirably proved in the various London districts. At the period of the epidemic of 1849, the best conditioned sub-district was the north-west of the City of London Union; and (among those on the same level) the worst was the sub-district of Cripplegate, which at that time was in a very unsatisfactory state, abounding with open cesspools and their consequences. In the former of these sub-districts the cholera mortality per 10,000 was 19, in the latter 47; and it is easy to show that additional sanitary errors soon develop a larger fatality. Not far from the city boundary, at the same level with these two sub-districts, in the Hackney-road division of Bethnal Green, it rose to 110; this large mortality being principally confined to a very small portion of the district, wherein (the local registrar reports), sewers were almost entirely absent; houses were contaminated with the filth of years; streets were remaining for days uncleansed from accumulating dirt, and all waste water, (including animal secretions,) were uniformly thrown into the public way. From a report of the evidence taken before the committee on the Public Health and Nuisances' Removal Amendment Bill, I shall extract some most important observations made by Dr. Wm. Farr, upon the sanitary condition of many of the districts and towns of England. In the appendix there is a report, drawn up in a tabular form,

showing the average annual mortality of 624 districts of England and Wales, computed upon an average of the ten years, 1841—50. As this is of such great interest and importance, I shall transfer it, as it stands, to my pages.

Three Registration Districts, in which the Mortality was at the rate of 15 in 1000.

Eastbourne.	Rothbury.	Glendale.
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Fourteen Districts:—Annual Mortality, 16 in 1000.

Battle.	Hambleton.	Gainsborough.
Reigate.	Steyning.	Haltwhistle.
Cuckfield.	Holsworthy.	Bootle.
Easthampstead.	Okehampton.	Builth.
Christchurch.	Garstang.	

Forty-seven Districts:—Annual Mortality, 17 in 1000.

Lewisham (London).	New Forest.	Launceston.
East Ashford.	Alresford.	St. Columb.
Ringwood.	Dorking.	Winchcomb.
Midhurst.	Uckfield.	King's Norton.
Hailsham.	Hendon.	Southwell.
Petworth.	Henstead.	Melton Mowbray.
Worthing.	Ongar.	Easingwold.
Lymington.	Mutford.	Belford.
Isle of Wight.	Torrington.	Bellingham.
Godstone.	Williton.	Bramton.
Blean.	Kingsbridge.	Longtown.
Wokingham.	Barnstaple.	East Ward.
Eastgrinstead.	Crediton.	Pwllheli.
Bromley.	Bideford.	Corwen.
Catherington.	Camelford.	Anglesey.
	Stratton.	Haverfordwest.

Eighty-seven Districts:—Annual Mortality, 18 in 1000.

Hampstead (Lon-	Bosmere.	Ulverstone.
don).	West Ham.	Fylde.
St. George, Han-	Samford.	Bedale.
over-square	South Molton.	Leyburn.
(London).	Langport.	Richmond.
Droxford.	Honiton.	Sedbergh.
Havant.	Bodmin.	Patrington.
Epsom.	Liskeard.	Ripon.
Kingston (Surrey)	St. Thomas.	Stokesley.
Farnham.	Wareham.	Northallerton.
Farnborough.	Axbridge.	West Ward (West-
Thakeham.	Helston.	morland).
Horsham.	Plympton St.	Castle Ward (Nor-
Bridge.	Mary.	thumberland).
Rye.	Amesbury.	Penrith.
Chertsey.	Thornbury.	Morpeth.
Hastings.	Upton-on-Severn.	Hexham.
Petersfield.	Tetbury.	Newcastle-in-
South Stoneham.	Northleach.	Emlyn.
Hartley Wintney.	Uttoxeter.	Narberth.
West Ashford.	Stow-on-the-	Bala.
Westbourne.	Wold.	Knighton.
Sevenoaks.	Solihull.	Rhayader.
Eton.	Atcham.	Tregaron.
Barnet.	Billesdon.	Lampeter.
Hatfield.	Lutterworth.	Dolgelly.
Freebridge Lynn.	Spilsby.	Llanelly.
Loddon.	Bingham.	Aberayron.
Blything.	Caistor.	Festiniog.
Thingoe.	Worksop.	Aberystwith.
Epping.	Bourne.	Pembroke.
Stow.	Grantham.	

Ninety-six Districts:—Annual Mortality, 19 in 1000.

Kensington (Lon-	Wandsworth	Westhampnett.
don).	(London).	Eastry.
Islington (Lond.)	Dartford.	Andover.

Alton (Hants).	Malmsbury.	Glanford Brigg.
Fareham.	St. Austell.	Sleaford.
Romney Marsh.	Keynsham.	East Retford.
Thanet.	Mere.	Market Bosworth.
Cookham.	Wellington (Somerset).	Uppingham.
Lewes.	Scilly Islands.	Stamford.
Bradfield.	Clutton.	Clitheroe.
Elham.	Axminster.	Askrigg.
Ticehurst.	Newton Abbot.	{ Helmsley. }
Cranbrook.	Sturminster.	{ Pickering. }
Guildford.	Totnes.	Pocklington.
Whitchurch (Hants).	Chippenham.	Tadcaster.
Wantage.	Chard.	Pateley Bridge.
Kingsclere.	Pershore.	Driffeld.
Faversham.	Rugby.	Thirsk.
Edmonton.	Martley.	Howden.
Staines.	Tamworth.	Wigton.
Chipping Norton.	Church Stretton.	Alnwick.
Ware.	Penkridge.	Chepstow.
Caxton.	Westbury-on-Severn.	Swansea.
Thrapston.	Tenbury.	Conway.
Wangford.	Ledbury.	Monmouth.
Wayland.	Cleobury Mortimer.	Llandilofawr.
Plomesgate.	Newent.	Bridgend.
Lexden.	Lichfield.	Machynlleth.
Swaffham.	Oswestry.	Cardigan.
Wimborne.	Droitwich.	Presteigne.
Weymouth.	Horncastle.	Ruthin.
Tavistock.		Llanfyllin.
Blandford.		Llanrwst.
		St. Asaph.

One Hundred and Ten Districts:—Annual Mortality,
20 in 1000.

City of London	Windsor.	Wallingford.
(London).	Faringdon.	Hollingbourn.
Hackney (Lond.)	Richmond (Surrey.)	Stockbridge.
Basingstoke.		Hungerford.

Tenterden.	Calne.	Oakham.
Fordingbridge.	Taunton.	Market Harbro'.
Croydon.	Truro.	Newark.
Tunbridge.	Dorchester.	Ashby-de-la-
Kettering.	Wells.	Zouch.
St. Albans.	Sherborne.	{ Ashbourne. }
Watford.	Tisbury.	{ Bakewell. }
Daventry.	Shaftesbury.	{ Chapel-en-le }
Newmarket.	Wincanton.	{ Frith. }
Linton.	Pewsey.	Blaby.
Hertford.	Bedminster.	Mansfield.
Hemel Hemp-	Marlborough.	Wirral.
stead.	Stratford-on-	Ormskirk.
Woburn.	Avon.	Settle.
Erpingham.	Chipping-Sod-	Malton.
Chelmsford.	bury.	Skipton.
Docking.	Evesham.	Reeth.
St. Faith's.	Ludlow.	Skirlaugh.
Sudbury.	Burton-upon-	Beverley.
Flegg.	Trent.	Otley.
Tunstead.	Market Drayton.	Rotherham.
Tendring.	Meriden.	Knaresborough.
Mildenhall.	Newport.	Weardale.
Halstead.	Bromyard.	Teesdale.
Depwade.	Cirencester.	Alston.
Mitford.	Cheltenham.	Darlington.
Blofield.	Ross.	Houghton-le-
Witham.	Clun.	Spring.
Romford.	Warwick.	Chester-le-Street.
Cricklade.	Wheatenhurst.	Kendal.
Poole.	Ellesmere.	Easington.
Bridgwater.	Weobly.	Carnarvon.
Penzance.	Shipston-on-	Llandoverly.
Redruth.	Stour.	Montgomery.
Tiverton.	Wem.	Carmarthen.
Bradford.	Shardlow.	Hay.

Ninety Districts :—Annual Mortality, 21 in 1000.

Winchester.	Thetford.	Lincoln.
Newbury.	Saffron Walden.	Louth.
Romsey.	Hartismere.	Boston.
Malling.	Dunmow.	Basford.
Dover.	Guiltcross.	Holbeach.
Chichester.	Forehoe.	Chesterfield.
Brighton.	Walsingham.	Belper.
Milton.	Cosford.	Barrow-on-Soar.
Bishop Stortford.	Aylsham.	Altrincham.
Woodstock.	Woodbridge.	Northwich.
Hitchin.	Braintree.	Nantwich.
Royston.	Wilton.	{ Pontefract. }
Brentford.	Falmouth.	{ Hemsworth. }
{ Leighton }	Beaminster.	Keighley.
{ Buzzard. }	Highworth.	Todmorden.
{ Luton. }	St. Germans.	Thorne.
Chesterton.	Warminster.	Bridlington.
Biggleswade.	Yeovil.	Selby.
Oundle.	Stone.	Scarborough.
Wycombe.	Shiffnal.	Whitby.
Henley.	Bridgnorth.	Doncaster.
Aylesbury.	Stroud.	Auckland.
Bicester.	Aston.	Berwick.
St. Neots.	Tewkesbury.	Cockermouth.
Hardingstone.	Cheadle.	Stockton.
Winslow.	Alcester.	Bangor.
Peterborough.	Dursley.	Brecknock.
Maldon.	Leek.	Holywell.
Foxne.	Southam.	Newtown.
{ Billericay. }	Atherstone.	
{ Rochford. }	Wellington (Salop)	

Forty-eight Districts :—Annual Mortality, 22 in 1000.

St. James, West-	Strand (London).	Brixworth.
minster (Lon-	North Aylsford.	Wellingborough.
don).	Whitney.	Huntingdon.

Berkhampstead.	Melksham.	Hinckley.
Towcester.	Bridport.	Loughborough.
Ampthill.	Alderbury.	Chorley.
Thame.	Westbury.	Congleton.
Newport Pagnel.	Devizes.	Runcorn.
Brackley.	Kidderminster.	Haslingden.
Banbury.	Leominster.	Ecclesall Bierlow.
Amersham.	Hereford.	Huddersfield.
St. Ives.	Stafford.	Goole.
Potterspury.	Bromsgrove.	Saddleworth.
Risbridge.	Spalding.	Halifax.
Downham.	Radford.	Neath.
{ Frome.	Hayfield.	Cardiff.
{ Shepton	Gainsborough.	
{ Mallet. }		

Twenty-seven Districts :—Annual Mortality, 23 in 1000.

Abingdon.	Ipswich.	Great Boughton
Southampton.	Yarmouth.	(Chester).
Maidstone.	King's Lynn.	{ Barnsley. }
Uxbridge.	Madeley.	{ Wortley. }
Cambridge.	Clifton.	Wakefield.
{ Headington. }	West Bromwich.	Dewsbury.
{ Oxford. }	Lancaster.	Durham.
Buckingham.	Burnley.	Wrexham.
Ely.	Prescot.	Pontypool.
Bedford.		

Twenty-eight Districts :—Annual Mortality, 24 in 1000.

St. Martin-in-the-Fields	Reading.
(London).	Sheppey.
Marylebone (London).	Canterbury.
Pancras (London).	Hoo.
Clerkenwell (London).	Alverstoke.
St. Olave (London).	Northampton.
Camberwell (London).	Colchester.

Norwich.	Derby.
Orsett.	Rochdale.
Bury St. Edmunds.	York.
Bath.	Tynemouth.
Worcester.	Carlisle.
Gloucester.	Sunderland.
Stourbridge.	Newport (Monmouth).
Walsall.	

Twenty-five Districts:—Annual Mortality, 25 in 1000.

Lambeth (London).	Bury.
St. Luke (London).	{ Barton-upon-Irwell. }
Stepney (London).	{ Chorlton. }
Poplar (London).	Preston.
Gravesend.	Blackburn.
Portsea Island.	Stockport.
Medway.	Hunslet.
Wisbeach.	Bradford (York).
Whittlesey.	Sculcoates.
Exeter.	Gateshead.
Plymouth.	Whitehaven.
Foleshill.	Abergavenny.
Dudley.	

Seventeen Districts:—Annual Mortality, 26 in 1000.

Bethnal Green (London).	Shrewsbury.
Chelsea (London).	Nottingham.
East London (London City).	{ Warrington. }
	{ Leigh. }
Newington (London).	Oldham.
Stoke Damerel.	Macclesfield.
Wolstanton.	Ashton.
Newcastle-under-Lyme.	West Derby.
Birmingham.	South Shields.

Thirteen Districts:—Annual Mortality, 27 in 1000.

St. Giles (London).	garet and St. John
Westminster, St. Mar-	(London).

Greenwich (London).	Leicester.
North Witchford.	Bolton.
Stoke-upon-Trent.	Sheffield.
Coventry.	Newcastle-upon-Tyne.
Nuneaton.	Crickhowell.
Wolverhampton.	

Nine Districts :—Annual Mortality, 28 in 1000.

Holborn,	} London.	Rotherhithe (London).
West London		Salisbury.
(City),		Salford.
Shoreditch (London).		Wigan.
Bermondsey (London).		Merthyr Tydfil.

Four Districts :—Annual Mortality, 29 in 1000.

St. George-in-the-East	East Stonehouse.
(London).	Bristol.
Whitechapel (London).	

Two Districts :—Annual Mortality, 30 in 1000.

St. George, Southwark (London).	Leeds.
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One District :—Annual Mortality, 31 in 1000.

Hull.

Two Districts :—Annual Mortality, 33 in 1000.

St. Saviour, Southwark (London.)	Manchester
	(District).

One District :—Annual Mortality, 36 in 1000.

Liverpool (District).

You must, however, take these computations with this qualification, that they *may overstate*, but do

generally *understate* the mortality to the extent of one, two, or three in 1000. The mortality of males in the dense subdistricts of Manchester (years 1838-44), was 37 in 1000; the mean lifetime was 24·2 years, and the corrected rate of mortality 1 in 24·2 living, or 41 in 1000.

In Ulverstone, the mortality of male children under five years of age, in the years 1838-44, was at the rate of 39 in 1000. At the age of from 10 to 15 years, of boys at school, the mortality is only 3 in 1000. At the age of from 15 to 25, it is only 8 in 1000. If you take the age from 25 to 35, it is 9 in 1000. At the more advanced age of from 65 to 75, the mortality is much higher; it is at the rate of 59 in 1000. At the age of the inmates of workhouses, from 75 to 85, it is 152 in 1000; and above 85, it is 262 in 1000. I will now show the mortality at different ages in Manchester; and it will be seen that the same sort of law is observed in an unhealthy district, as in a healthy district; but that the mortality is increased in a much greater proportion at some ages than it is at others. For instance, among boys under the age of five years, in the Manchester district, it is 137 in 1000; at the age of from 5 to 10, it is 14 in 1000; at the age of from 10 to 15, it is at the rate of 6 in 1000. At that period of life it is the lowest in Manchester as it is in Ulverstone; and if you went over the whole of the districts, you would find that between the ages of 10 and 15, there is a lower rate of mortality than prevails among men or among children. The mortality in Manchester, between the ages of 15 and 25, is 9 in 1000. Between

the ages of 25 and 35, it is 13 in 1000; from the age of 65 to 75, it is 101 in 1000. Between the ages of 75 and 85, it is 198 in 1000.

In large towns the average presents too favourable an aspect. In London, for instance, at the age of from 15 to 25, when immigration is most active, the mortality of males is only 8 in 1000. It is as low as it is in several of the healthy districts, but that arises, I believe, from people in health coming to London; it arises in the second place, in my opinion, from servants and others in London becoming consumptive, going for a time into the hospitals, and then, in many cases, returning to their own homes and parishes. At a more advanced age, when they are settled and have families, namely, from the age of 45 to 55, the mortality is 27 in 1000 in London, and in Birmingham 28 in 1000, whilst it is only 13 in Ulverstone. Among the working-men of London, Birmingham, and Manchester, the mortality is probably double what it is in the healthy districts by which they are surrounded.

The town population of Great Britain is now above 10,000,000, and the mortality is greater, in proportion to the whole population, than it was in 1821 or 1831. There is a constant tendency, therefore, in the general mortality of the country to an increase: the health of the country will decline, and the strength and vigour of the population will decline, unless measures are taken to improve the large towns; in Birmingham, for instance, there is an excess in the rate of mortality of about 9 in 1000, which gives in ten years an aggregate of 14,000 unnatural deaths, or

1400 per annum. If the mortality were as low as in many districts round it, there would be 1400 less deaths a year in Birmingham than at present; I call the rate of mortality up to 17 in 1000 the natural mortality.

I have already stated the rate of mortality in London is between 24 and 25 in 1000; in Berlin, the mortality is at the rate of 25 in 1000; in Turin it is 26 in 1000; in Paris it is 28 in 1000; in Genoa it is 31 in 1000; in Lyons it is 33 in 1000; in Hamburg it is 36 in 1000; in Moscow it is 38 in 1000; in Stockholm it is 39 in 1000; in St. Petersburg it is 41 in 1000; and in Vienna the rate of mortality is 49 in 1000. I should observe that, in Vienna, more than half the deaths take place in public institutions, such as hospitals and asylums, and that more than half the children are illegitimate. In the Foundling Hospital there, 3525 children died in one year; whilst the number of deaths in the general hospitals was 2678. I have a statement showing the mortality of the countries in which those cities are placed. In England, the rate of mortality is 23 in 1000; in Denmark it is 23 in 1000; in Holland it is 24 in 1000; in France it is 23·5 in 1000; in Sweden it is 24 in 1000; in Prussia it is 28 in 1000; in Sardinia it is 30 in 1000; in Austria it is 31 in 1000; and in Russia it is 36 in 1000.

With these averages I shall terminate the first part, on General or Public Hygiène, trusting that the vast importance of the subject will be impressed upon all, especially those in authority, and that some benefit may be derived from the perusal of the preceding pages.

In conclusion, I may say that there is evidently a feeling on the part of the public to be instructed in these vital truths, and that there will not only be no opposition (by the mass) to hygiènic reform, but willing and grateful support.

The members of the various district boards may, therefore, enter upon their duties with alacrity, and pass their measures with the aid of the moral force of the PEOPLE.

END OF THE FIRST PART.

Part the Second.

ON INDIVIDUAL, OR PERSONAL HYGIÈNE.

CHAPTER I.

“ All the world’s a stage,
And all the men and women merely players :
They have their exits, and their entrances ;
And one man in his time plays many parts,
His acts being seven ages.”

WHAT is health? It is that condition of the system in which every component part performs the particular duty assigned to it with integrity, and without the brain being conscious of it, except especially called to observe it. For instance, a man may walk a mile without once being aware that he has a leg : but let him have a corn, a chilblain, an abrasion, anything abnormal, however slight, and he is conscious of that member at every step. This healthy condition of the system has been the desire of all nations and individuals to attain, and preserve. We read that our earliest progenitors attained immense ages ; and when we come to consider the facts, that they would live to a great age (in comparison with ourselves) was to be expected. Firstly, there were no hereditary diseases—one of the greatest drawbacks in our time to a long life. Secondly, there is no reason to suppose that they were ravaged by epidemics—living as they did,

scattered over a large space of ground thinly inhabited. Thirdly, they were simple feeders, took great exercise—hunting, swimming, &c.: and fourthly, they lived much in the open air, without being exposed to the multitudinous disadvantages of a town life. Still, in spite of this, there are many counterbalancing advantages which we enjoy that they had not; except the hereditary diseases, there is no reason why we should not live as long as they did. Of this there is no doubt, that the average duration of life is increasing, and that we live to a greater age than our great-grandfathers, other things being equal. Hygiène—the art of attaining and retaining health—is, unfortunately, much too little studied. Dr. Combe, writing some years ago, says, “The little regard which has been hitherto paid to the laws of the human constitution, as the true basis on which our attempts to improve the condition of man ought to rest, will be obvious from the fact, that, notwithstanding the direct uses to which a knowledge of the conditions which regulate the healthy actions of the bodily organs may be applied to the prevention, detection, and treatment of disease, there is scarcely a medical school in this country in which any special provision is made for treating it—the pupil being left to elaborate it for himself from amid information communicated to him for other purposes. In some of the foreign universities chairs have been instituted for the purpose; and in France a journal of hygiène exists. But in this country, with the exception of Sir John Sinclair’s elaborate ‘Code of Health,’ and one or two other publications of a later date, the subject

has never been treated with anything like the regard which it assuredly deserves. In one point of view the omission is not so extraordinary as it may at first sight appear. The prominent aim of medicine being to discriminate and cure disease, both the teacher and the student naturally fix upon that as their chief object, and are consequently apt to overlook the indirect, but substantial aid, which an acquaintance with the laws of health is calculated to afford in restoring the sick, as well as preserving the healthy from disease. It is true, that almost every medical man, sooner or later, works out this knowledge for himself; but, in general, he attains it later in life than he ought to do, and seldom so completely as he would have done had it made a part of his elementary education, to which he saw others attach importance." Since Dr. Combe wrote, there has been some slight appreciation of the subject. Dr. Watson has introduced a slight sketch of the principles of hygiene in the first chapter of his work on the "Practice of Physic." The Government have organized commissions to inquire into the various evils affecting the health of the community; the City of London has its Officer of Health; spite of all this, there has been very little done. Hygiene is not taught in our schools, and the public still gain their knowledge from *the profound experience of their grandmothers*.

I shall, therefore, in the following chapters give concise rules for the personal guidance in the paths of health of those who wish to live happily to a good old age, and who will take the trouble to try them. It is needless to enlarge upon the advantages of health;

every one must already be sufficiently aware of them ; but there is a procrastinating, conservative feeling, that man is heir to, that prevents him altering his mode of life, and putting off any innovation, even if convinced of its efficacy, to some remote time : he will put off going into the country till he cannot walk ; it is too cold to commence the bath yet, or he is too old to change his diet,—it has agreed with him all his life ; or why should he wear such an article of dress ? his father never did—*et hoc genus omne* : besides the temptations of the various appetites to prevent his living with regularity. Such are a few of the difficulties in the path of the hygiènic reformer.

CHAPTER II.

“ At first the infant,
Mewling, and puking, in the nurse’s arms.”

If we examine the reports of the Registrar-General, we are astonished by the fearful mortality among infants and children under five years of age ; one in every five children born dies before it reaches twelve-months ; and one in three before it has completed its fifth year. The question immediately occurs to us—Cannot this be prevented ? I think in a great degree it may. The ratio is excessive, more than might have been anticipated ; and if practical science, combined with experience, be called in to our aid, and plain instructions to parents, particularly mothers, promulgated among all classes, many a young life

might be saved, and a fatal attack of illness warded off, by putting into practice a little knowledge, and being careful and attentive to the wants of the little charge entrusted to their care. An infant when brought into the world is the most helpless of God's creatures; if it were not aided, it would die in a very few hours; but the All-wise has placed in the maternal breast a peculiar instinct (I call it so, for we find it in the lower animals), the love of their offspring; He has also given the mother the peculiar food that a creature so young and tender can digest and assimilate—the maternal milk. Man, by an almost poetical idea, passes through every stage of animal creation, commencing from a living cell, an animate 0; he advances by almost imperceptible stages, until at the time of birth he may be said to have arrived at the carnivorous stage, for his digestive and assimilative organs somewhat resemble those of that class, being simple, and having powers of digestion only suited to an unstimulating diet like milk. The infant being supplied with its natural food, soon digests it, and is quickly ready for more; and by this means not only compensates for the wear and tear of the system, but speedily adds to its bulk. At the seventh month the teeth begin to appear, the digestive system has also materially altered, the stomach is rounder, and the alimentary canal longer; these changes portend a growing ability for the reception and digestion of a more complicated diet; the teeth are prepared to masticate more solid food, the stomach by its change of form is prepared to digest, and the intestines to absorb, farinaceous and

vegetable food; and at two years the child has the whole of its first set of teeth. This process of gradual development is very beautiful, and we ought to learn from nature that everything, to be done well, takes time, and progress, although certain, is gradual. From the foregoing concise account of infant growth, we may learn several most important rules for our guidance in the treatment of infants, and preventing disease. Let it be remembered that the first is the most critical year of life; that one child out of every five brought into the world dies before it has completed it; and not only that, but according to how the infant is nourished, in a great degree, depends the health and perhaps the happiness of the man. I cannot lay too great stress upon this subject, as it is of the last importance; and a mother for the JUDICIOUS care lavished upon her offspring during the first year, will be rewarded in the future by the rosy cheeks and laughing eyes of her children. As a rule, a mother should nurse her own child; but as there are so many causes, especially now-a-days, to prevent this, a wet-nurse must occasionally be procured. I wish it to be distinctly understood, that no child should be brought up by hand; occasionally we *hear* of successful instances, but how many do we *know* that have died under the process; therefore, if the mother cannot, or is forbidden by her medical attendant, to nurse her own child where possible, a wet-nurse should be procured; the choice of a woman who is to take upon herself the important duties of a mother is of the greatest moment, and a parent should make every inquiry possible into her health and previous habits.

A model wet-nurse should be pretty, and of an amiable expression, as the child gets much to resemble the face it is constantly with; she should be strong and healthy, with a good supply of milk; her education should be good, and her habits cleanly; her diet should be nourishing but unstimulating; spirits are to be particularly avoided, as also raw fruits: in fact, anything at all likely to disagree, for the infant suffers with the nurse; and if she is ill, the child will suffer also. Tubercles in the lungs increase the quantity of phosphate of lime in the milk, as noticed by Labillardière and Dupuy. I think, therefore, it would be highly improper to allow a female with any trace or even suspicion of tuberculous disease to nurse. Not that a few grains, more or less, of phosphate of lime in the milk can possibly do any injury to the child; but the fact once established that the milk may be thus altered by disease, leads to the suspicion that some other substances, not yet recognised by their physical or chemical characters, may be in the milk of diseased nurses, and which may have an injurious effect upon the child; and the suspicion does not confine itself to those affected with tubercular diseases; other hereditary or constitutional affections may also be attended with altered condition of the milk. This suspicion is strengthened by the common observation that the milk of different nurses does not equally suit the same child; nor that of the same nurse different children. The child, then, should have nothing but milk from the breast (the supply of course being abundant and nourishing) for at least six months,—when I say nothing, I mean actually nothing. If,

however, there is not sufficient milk for the child, or if it is not sufficiently nourishing, the nurse should be changed if possible; if not, asses' milk, or half cows' milk and half warmed water, with a little loaf sugar, from a bottle, should be administered. Cows frequently suffer from disease; the milk is changed; it is not so homogeneous as when pure; it is imperfectly liquid, and is thick or viscid upon the addition of ammonia, together with certain microscopic changes in the floating cells. An excellent adjuvant to milk, after the third or fourth month, is a wineglassful of the gravy taken out of the centre of a leg of mutton, left to cool, the grease removed from the surface, the same quantity of water added and mixed with it, and a few bread crumbs soaked in it—to be taken daily; this is much to be preferred at this age to paps and all the farinas so freely advertised. After the child has cut a few teeth it may commence the farinas. A mixture of three-quarters of the best wheat-flour and one of barley-meal, heated in an oven, but not baked or browned, makes a very excellent food for young children, when made into a pap or pudding. As regards the frequency of feeding children whilst at the breast, and during the first three months, about every three hours during the day, and twice in the night, if wakeful, is quite sufficient, and if carried beyond may do harm. As it gets older, once in every four hours will be found enough, and during teething less food should be given than at other times. Pure milk contains in itself everything that is required for the young infant:—

CONSTITUENTS OF MILK.	WOMAN.	ASS.	COW.
Caseine	1.52	1.82	4.48
Butter	3.55	0.11	3.13
Sugar of Milk	6.50	6.08	4.77
Salts { Lactate of Soda ... Chloride Potassium } Phosphates of Iron }	.45	.34	.60
Water	87.98	91.65	87.02
	100.00	100.00	100.00

Its caseine resembles and will form the albumen, fibrine, and gelatine of the tissues; the butter and sugar serves to form fat, and to promote animal heat by combining with the oxygen of the air in the lungs; the salts are required to form the bones, and are carried off in the secretions; the iron is used in the corpuscles of the blood, and the water enters into everything. The mother's milk is easy of digestion, but the cow's, from containing a larger per-centage of animal matter, is heavier; it should therefore be used skimmed, and heated to about 98° Fahrenheit, and given out of a bottle, with one of Maw's patent Indian-rubber nosles. With respect to the clothing of an infant, it should be as simple as possible; the belly-band should be of flannel, and always worn, as it is the most important article of clothing, and requires careful application, as it should not be too tight, and yet give support: there should be no pins used. The child should be kept as dry and clean as possible, being frequently changed, and great care taken in placing the pins. With reference to the upper clothing, it must be left to the taste of the mother, remembering that too little clothing, upon

the hardening principle, leads to depression of the vital powers, and frequently death, on account of the constant atmospheric and hygrometric changes. And the opposite extreme—the codling one—although perhaps safer in this country than the former, is pernicious, owing to the liability of catching cold and inflammations, from partial exposure. The safest mode with a healthy child, is to accustom it early to the cold-bath every morning, when with flannel next the skin all the year round, and extra upper clothing in cold weather, it may brave most of the atmospheric vicissitudes with impunity. The room in which the infant is dressed should be of a genial temperature—about 60°,—when the limbs may be exposed, and it may be allowed to kick about for a considerable time, with benefit. Children require light and air, to encourage their growth and development; for, being deprived of the former they become stunted and deformed, and without free ventilation scrofula is induced. It is needless to add that the clothing should be as loose as possible, to allow of free use of the limbs, and that it may be short-coated from birth. These observations apply to a healthy child; with a weakly or diseased one, the treatment must be modified to suit the case: thus, it would not be safe to use the cold-bath except very gradually, and the clothing must be adapted to the wants of the infant. As fresh air is the chief and most important aid to health, the little things, being carefully protected during unseasonable or cold weather, should be several hours in the open air every day; this enables them to become strong, less subject to colds, diarrhoea, rickets, and

scrofula — complaints so common among nursery-reared children. An infant may sleep as long and as often as it likes without detriment, if kept warm by artificial heat. The power of creating and retaining heat in the infant is not great, and a short exposure to cold, having only its own powers of generating heat to rely on, might be fatal. In cold weather, if a fire is not kept up the whole night in the room, it should sleep with a young and robust person, so that heat might be imparted to it; for instances have occurred where infants having slept with aged persons on cold nights, have been found dead in the morning,—all the warmth having been extracted from the child by the aged person. In bringing up a child by hand, it should be frequently weighed, not only to prove that there is no wasting, but that there is an increase commensurate with the age of the child. Thrush or aphthæ is a bad sign, and shows that the nutrition is not sufficient, and of a faulty character. It is generally looked upon by nurses to be an affection connected with teething; I do not deny that it may occasionally occur as a symptom of approaching dentition, but generally it is a sign of faulty nutrition, and want of power; it is accompanied by languor, fretfulness, diarrhœa, and other signs of inanition. The best prophylactic is a wet-nurse, and if there is already one, and it does not yield to treatment, a change may entirely remove the bad symptoms very rapidly.

We may be supposed to have arrived at the period of dentition, and as it is a question frequently asked, and seldom correctly answered,—the periods when the various teeth may be expected, and their rotation,—I

shall give the general average. During the seventh month, the two front teeth of the lower jaw may be expected, and soon after, the corresponding ones of the upper jaw; at the ninth month the two lateral front teeth will appear, following the same order as before; during the twelfth month the two front double-teeth in either jaw; in the eighteenth month the four canine, or dog-teeth, are cut, and to make the whole set of twenty complete, on the child arriving at the termination of the second year, the last double-teeth appear. This is the average; but I must add, that the exceptions are so great and varied, that any exception, however strange, must not be considered to disprove the rule;—children have been born with teeth.

The period of dentition is a critical one; it is now that the child will feel the advantage of *judicious* early nursing; for if it is weakly, we may expect convulsions, inflammations of the brain and mesenteric glands, acute water on the brain; in fact, it is a time requiring much watching. The gums should be daily felt, to see if they are tumid, hot, or swollen; if the child is constantly biting its finger, or anything that comes in its way, the advent of a tooth may be expected. Eruptions about the head are frequent about this time, but should cause no uneasiness, as it is frequently rather a healthy effort of nature, to relieve congestion about the head, than otherwise; for congestion of the brain is to be feared, producing convulsions, and other injurious symptoms. It has been computed that twenty-five per cent. of the deaths that occur before the age of five are set down to convulsions;

they are, however, produced by various causes: worms in the intestines frequently by their eccentric irritation, induce them; exposure of the head to a hot sun by inducing congestion, may give rise to an attack; they occur sometimes from the bowels having been neglected, either from constipation or diarrhœa. It is evident, then, that although convulsions are a symptom of various disorders, most of them may be warded off by due care and attention on the part of the nurse. With respect to lancing gums, if mothers would only allow it to be done more frequently, many of the troubles devolving upon the infant might be spared by this simple operation; and instead of being a cruelty it is a positive work of necessity in many cases. An increased action of the bowels, however, is the best safeguard against the evils arising during dentition. With reference to medicines that are most fit for infants, there are very few required: for wind—a frequent and troublesome ailment to which they are liable,—three to eight drops of *sal volatile*, in a tea-spoonful of water, or fluid *magnesia*, is the best and least hurtful medicament, to be followed either by a tea-spoonful of castor oil, or a small powder, composed as follows:—

R. Hyd. c. Creta, gr. iij.	}	To be taken in a little sugar, or honey,
Pulv. Rhæi, gr. v.		

for a child of a twelvemonth; three grains for a child from four to six months old. If a judiciously-selected diet, pure air, and warmth, have not the desired effect, and the appetite fail, with a pasty appearance of the skin, and perhaps some eruption, one of the preparations

of iron, with a vegetable bitter, is very useful, and generally brings about the wished-for result. The citrate of quinine and iron, in one-grain doses, twice a day, is an exceedingly judicious combination, and seldom disagrees; it may be given in a little cinnamon-water. If the appetite is good, but the same symptoms appear, the ammonio citrate of iron in two-grain doses three times a day, after meals, will most frequently succeed; commencing in both cases with the powder, as before prescribed.

If a child wakes up in the night terrified and screaming, without any apparent cause, it may be caused by constipation, requiring a purgative; or it may be a tooth pressing on the gum, requiring lancing; or some indigestible food in the stomach, which an emetic will remove. As this is not an uncommon symptom of these ailments, it is as well that it should be understood, or it may be set down to something worse, and cause great anxiety. A disease to which children are liable, and which is generally fatal—the croup,—I am quite sure, by judicious management, may be warded off. Croup generally occurs amongst children brought up by hand, or in the second year of life after weaning, and is modified in many of its symptoms by peculiarities of air, water, and situation. The affection assumes one character among the poor of a crowded city, and another among the children of a labourer in a rural district. It is endemic in some localities; and residence near the sea, proximity to the mouths of large rivers, a moist soil and a damp atmosphere, have been enumerated as greatly predisposing to the disease. Croup is much more frequent

in the country than in towns. Out of 100 children dying from all causes, four times as many will have died from croup in Surrey, as in London. Croup is occasionally epidemic; in the years 1805-6-7, it extended over the greater part of central Europe, the Crown Prince of Holland, nephew of Napoleon I., dying from it. Croup almost always attacks at night, and often after the child has been exposed to a damp cold wind the preceding day. In Scotland it is most common, and has been observed to be particularly frequent among the children of washerwomen, and thus evidently connected with exposure to moisture. Dr. Alison says, that it seems often to be produced by the child's sitting, or sleeping, in a room newly washed; and he has noticed its frequent occurrence on a Saturday night—the only day in the week on which it is customary for the lower orders in Edinburgh to wash their houses. These observations carry their own inference:—avoid moisture, and cold, and places where the disease is endemic. Towns in the south are more free from it than those in the north. Warmth, and a dry atmosphere, with nourishing diet, are the most efficacious prophylactics.

EXERCISE.

A young child, after the bath, should be well rubbed all over with the hand, or dry warm towel; it promotes circulation, and warmth at the surface. After being dressed, it should be allowed to kick and crawl about upon some raised surface,—the floor, according to the present mode of ventilating houses, being too draughty. This will give exercise to the limbs, and

promote digestion. When it is old enough to rise upon its feet holding by some piece of furniture, it should be allowed to do so; but not encouraged or forced, as it is needless to push a young child in anything; it does harm, and only leads to weakness in after-life. A child's body, and faculties of observation, should always when awake, be alternately occupied and amused; but this should never be pushed to fatigue, particularly if it is at all delicate or weakly. In exercising children, placing them upon damp boards is to be particularly avoided; a nursery should be always carpeted, or if boarded, dry-rubbed; as the damp of the boards is most deleterious, and causes croup, scrofula, and many other ailments. In tossing a child about, it should be observed whether the child derives pleasure or not; if it does not crow and kick, it should not be continued, as likely to do harm. The child should be carried on either arm, and not be accustomed to one particular posture when nursed, or being carried.

SLEEP.

An infant should sleep much during the day, and all night. It should lie on the right side after a meal to promote the descent of food into the intestines; it should sleep with the mother, or nurse (if young), during cold weather if a fire is not kept up; but should not be cuddled in the arms, as children are frequently smothered by such a practice. A child should never be awakened, but allowed to sleep until it spontaneously awakes; and the most important of all, never give a drug of any kind to promote sleep.

If a child does not sleep, it must be ill ; then consult a medical man, as so many children are yearly killed outright, others dying young, and others made cripples, scrofulous, or idiots, by the use of opiates and other quack medicines containing some preparatives of that drug. Godfrey's Cordial, and Daffy's Elixir, are the names of two that are to be avoided. We read too frequently in the papers, of children who have been sent to their long sleep by such preparations. If a child cries much, loses its desire for food, and does not sleep, it must be ill ; and, in such cases opiates would only aggravate the symptoms. Send for your doctor if you want to save your child ; very few drugs, in the treatment of children, should be allowed in the hands of the people.

With respect to the diseases peculiar to childhood, as they are almost certain to be caught some time during the first ten years of life, at what age is it most favourable to have them, or rather, which is the least unfavourable ? I think that a child if it is healthy, is best able to cope with these diseases between five and six, than at any other time. It has passed through the most critical period of life ; it is not yet irritated by the second dentition ; and statistics show that between five and ten, the mortality is considerably less than between birth and the termination of the fifth year. Another consideration is, whether you should avoid or encourage the contraction of the disorder. If the child is healthy and strong, and if the character of the epidemic be mild, then I think it should be rather encouraged than avoided ; but if on the contrary the child is sickly,

or the epidemic at all malignant, then seek another air for the child, and avoid contact with other children, especially those suspected. The season of the year should be also taken into consideration, and low damp situations avoided; the sick room should be an upper one, well ventilated, and quite dry.

We find, from a table drawn up by M. Papavoine, that from three to seven, children are very liable to tubercular disease; the liability then suddenly falls, until they arrive at the age of twelve, where it is again at the maximum: and between the ages of four and thirteen, more children suffer from some form of tubercular disease, than those who do not. Now, although I cannot go so far as to say that there is so large an average as this, still it is a very frequent form of disease, and one that may be warded off most successfully. As I hope to enter into this question more fully upon a future occasion, I shall leave it for the present. A child should commence taking other food at six months, when milk, water, and a little sugar, from a bottle, may be given twice a day, to assist the mother—or a little gravy and bread-crumbs once a day. The farinas may be commenced upon the child having completed the ninth month,—and increasing the food from this time, both in quantity and frequency, until at a twelvemonth the child may be entirely weaned from the mother. Light bread-and-milk puddings, lightly-boiled eggs, and finely-chopped meat, with bread crumbs and gravy, should now be the daily food; and with warm clothing and out-door exercise in mild weather, the child will daily become stronger, and attain and retain health, which

will become constitutional, enabling it in after-life to resist morbid influences, which others more delicate would rapidly succumb to.

One of the things in the education of a young child, and which parents should be most particular in giving instructions to their nurses, and seeing carried out, is, that their children, especially the very young, should not be frightened either by sudden startling, or by those insidious stories of ghosts and bugbears which were formerly so popular among nurses, although I am glad to say now not to the same extent. Many children have been condemned to hopeless idiotcy, or become confirmed epileptics by being suddenly frightened; and many nervous complaints owe their origin to such malpractices.

Infants, and young children, if brought up carefully, should require very little medicine,—a change of diet will generally relieve any little ailment that may appear. If, however, it is the opinion of the parent that the child should have medicine, let it be administered by an intelligent medical man. An infant is a very fragile little creature, and by a mistake in treatment, may be easily consigned to the bosom of mother earth.

CHAPTER III.

"Then the whining schoolboy, with his satchel,
And shining morning face, creeping like snail,
Unwillingly to school."

At what age is it right to send a child to school? If a child is strong,—if the school is one where the health and comfort of the scholars are looked after equally with their mental culture,—then I think a boy may go to school between eight and nine, and a girl a year or two later. But I have a few words to say regarding schools. We see daily in the newspapers, advertisements of schools, at such a ridiculously low sum, that it is quite impossible that the children can be fed on wholesome and nourishing food required by a growing child, throwing the education in, for the money. How, then, can we expect the children of the rising generation to be strong, if they have not the food out of which to make bone and muscle? Secondly, I do not think cleanliness is sufficiently studied at schools; this remark applies principally to boys' schools; boys are naturally careless and dirty; and, if they are not closely watched, I believe would hardly ever wash at all. Under this head I shall therefore examine into, and say a few words upon

THE BATH.

Bathing is one of the most ancient customs; we read of it in the earliest authors, and it has been made use of by all nations,—some for the invigorating influ-

ence induced, others for luxury. Amongst ourselves at the present day it has fallen into unmerited disuse; but the inhabitants of the East still retain it as one of their institutions,—in fact as a part of their religion. The latter however abuse it as a luxury; and instead of being a tonic, it becomes an enervating influence. There are several forms of bathing in use. I shall merely speak of a few, and those that tend to health.

THE COLD-BATH.

The temperature of the cold-bath of course depends upon the time of year in which it is used, as a cold-bath in summer at 50°, would be a warm one in winter when the atmosphere is at 32°; consequently, the cold-bath has a range from 33° to 75° Fahrenheit. There are three forms of cold-bath—the plunging-bath, the shower-bath, and the sponging-bath. I do not mention those for remedial purposes, as the douche, &c.

The plunging-bath is taken in the sea, in a lake or pond, in a river, or in baths erected for the purpose. Sea-bathing is tonic and invigorating, and is most beneficial to those who have no positive disease, but are merely debilitated by over-work, long-continued study, a city life, &c. River and lake-bathing, is generally colder and more treacherous than sea-bathing, on account of springs of cold water occurring in different spots which may give rise to cramp. The plunging-bath to prove efficacious, and to cause the desired tonic and stimulating effect, should be of very short duration; the plunge should be made head foremost,

followed by swimming for about ten minutes. If the bather does not swim, he should plunge in several times, then get out, not remaining in the water: after drying the person with a coarse towel, and dressing quickly, a rapid walk should follow. The proof of the bath having done good, is, that soon after emerging a genial glow pervades the surface, the spirits are enlivened, and the nervous system invigorated. If, on the contrary the bath has done harm, the surface is cold, followed by shivering and a headache. Before bathing, care should be taken not to lower the vital powers by too great exercise followed by perspiration, as, in that case, the cold is so lowering as to cause the pulse to fail, the respiration difficult and irregular, pain in the head, drowsiness, and cramps; and, if the immersion is continued, the temperature of the body rapidly falls, and faintness followed by death ensues. There are several diseases and conditions of body wholly precluding the use of the plunging-bath; those who have any disease of the heart or lungs, or who suffer from congestion of the brain, should not attempt this form of the cold-bath, as the shock is too great.

THE SHOWER-BATH

Is a very useful form of the cold-bath, and is suited to females, and invalids who are unable to take the plunging-bath; the shock is very great, and the stream of water lasts a very short time, so that the conditions upon which the cold-bath depends for its tonic and stimulating effects, are found here in great perfection. In cold baths used in the house, the

water should be always placed in the bath overnight, so as to become the temperature of the room as nearly as possible; if this is not so, a little warm water should be added, for water is an excellent conductor of heat, and though at the same temperature as the air, always feels much colder. A cold-bath should not be too cold. With the most robust, it should not be many degrees below the surrounding atmosphere; and with the delicate even a few degrees warmer than the air will have the desired effect, as it will have the sensation of cold to the bather. The bather should as a rule, protect the head with an oil-skin cap, as there is no advantage in wetting the hair, and frequently great disadvantage, as it is not always thoroughly dried, and neuralgias and ear-aches are caused by such neglect.

THE SPONGING-BATH

Is the usual house-bath, and is very efficacious. The head being covered with a cap, the water should be first poured over the head, then the whole body quickly sponged, and after drying with a coarse towel, circulation soon spreads over the whole surface. If this is done every morning throughout the year, in winter taking it in the sleeping-room, or in a room slightly warmed, with the water at the same temperature as the surrounding air, colds, rheumatism, and partial inflammations, produced by exposure, may be entirely warded off.

THE WARM-BATH

Has a temperature of from 85° to 98° Fahrenheit; it

is luxurious, imparting an agreeable warmth, raising the pulse, increasing the number of respirations, encouraging perspiration, and is generally followed by languor and sleep. It should be only used at night, in a warm room, and just before getting into bed. It is very beneficial to the old and weakly, and as an introduction to the cold-bath—gradually lowering the temperature.

THE VAPOUR-BATH

Is a powerful stimulant and sudorific; it relaxes the tissues, and increases the rapidity of the circulation and respiration; it is used principally by the inhabitants of hot countries, as the shock would be too great in this country, to enter into the air for some *considerable time* after such a bath.

Bathing should be encouraged by all; and the establishment of public baths in every quarter of London and other large towns, should be the business of the local authorities and of the government. Every house of the wealthy should contain its bath-room, well supplied with warm and cold water, and being there, should be made use of, not as is too often the case now where there does happen to be one, it is seldom used. There are few things that tend so much to the preservation of robust health, as the daily use of the cold-bath, followed by exercise.

CHAPTER IV.

"And then, the lover,
Sighing like furnace, with a woeful ballad
Made to his mistress' eyebrow."

THIS is the most careless time of life. The young man or woman is thoughtless of all concerning health; and as it always will be so, even if they are made aware of the danger of neglect, it is not much use giving any directions to the lover. However, there is one point, perhaps, which might prove interesting, if their attention were called to it; therefore under this head I shall say a few words

ON DRESS.

This subject is too little studied with regard to hygiene, although quite enough for adornment and fashion. There are, however, several useful rules that may be laid down, which will greatly conduce to health, and will not interfere with external embellishment. There are two systems, equally pernicious, which must be avoided,—the coddling and the hardening. I have spoken of this in reference to children in a former chapter, but it is carried into youth in some cases.

Children should, in the house and in mild weather, have their limbs exposed to the air as much as possible, as this is required for their development, and, combined with the daily use of the cold-bath, prevents the contraction of colds and coughs; but in cold weather, out of doors, their little legs should be pro-

tected by gaiters, and their arms by sleeves. Flannel is the most valuable article of clothing we have, and should be worn by every one, from birth to death; by the healthy, the robust, the sick, the weak; in all countries and in all climates. It promotes insensible perspiration, which is absorbed and immediately distributed through the whole thickness of that substance, and by this means exposed by a very large surface, to be carried off by the atmosphere; and the loss of this watery vapour, which the flannel sustains on the one side by evaporation, is immediately restored to the other, in consequence of the strong attraction the flannel has for the vapour; the pores of the skin are thus disencumbered, and continually surrounded by a dry and salubrious atmosphere. Flannel should be, therefore, particularly worn in hot climates, for it is the hot-bath of perspiration confined by linen, and then allowed to cool and chill the wearer, that renders the heat of tropical climates so pernicious to the European, for they cannot wear the usual dress of the natives—the bare skin. In hot climates, then, a flannel dress is the most desirable, with very little upper clothing. In cold, as there is not much perspiration, a thick flannel, for warmth, with linen, and upper clothing according to the weather. In changeable climates, like our own, the under clothing should be the same all the year round; the upper according to the time of year and season. There are three rules of dress which must be always borne in mind—*keep the feet warm and dry, the head cool, and the chest protected.* To keep the feet dry, there has been of late years introduced a most valuable invention,

namely, the India-rubber goloshes ; they are impervious to damp, and to the busy man, who is continually running about in the wet, and has not time to be continually changing his boots, they are the greatest modern comfort and preservative of health. Young ladies, although they say that they spoil the appearance of their feet, and hide from sight those delicate little kid boots with the military heels, yet, if obliged to go out in the wet, may keep the roses in their cheeks, and prevent that horrid cough, and save their voices to sing, by the use of these said goloshes. The ladies, however, have given us a lesson in head-dresses of late, for the new-fashioned bonnet keeps the ears warm, and yet allows the front of the head to be kept cool. I therefore disagree with *Punch* and others, and think that the new bonnet is a very efficient ladies' head-dress. If, however, they have given us a lesson in head-dresses, I must give them one in return ; which, before I mention, I am sure will not be attended to,—not for some time, at least. It is the most pernicious and objectionable custom of wearing low dresses. Why young, and some *old* women, too, should lay bare their chests and shoulders, get over-heated by dancing, then sit at an open window or walk in a cold passage, I cannot understand. Many and many are the cases of young girls, having the seeds of consumption within them, being taken ill, and gradually dying, from such exposure. A woman to be really admired, must be so from her beauties of heart or mind ; the personal attractions are merely lures to the net ; they will never hold in bondage a man's heart—merely his senses. If this be true, of

which I have no doubt, why sacrifice health, perhaps life, to a foolish fashion? A woman looks equally lovely in a high dress as in a low; and if we turn to the books of costume, we shall see the various fashions in which women dressed in times gone by, and were raved about then as the most perfect style of dress. Helen of Troy did not wear crinoline; and yet two nations were decimated on account of her beauty. Cleopatra did not dress her hair with a coronet and velvets, and yet she enthralled a Cæsar, and led captive an Antony. Joking apart, what I mean is—that beauty does not require the absence of any article of clothing necessary to the protection of health. What is the greatest adornment of beauty?—Health. What would the loveliest countenance ever created be without the rosy cheek, the flashing eye, the ruby lip, the glossy hair?—A statue. Then, remember, keep the head cool, *the chest covered*, and the feet warm and dry; and upon this foundation build what superstructure you like of ribbons, silks, laces, &c.

Several works have been written upon tight lacing. All I can say is—read them; and however stringent and severe they may be, they cannot say too much upon the unhappy effects produced by it. I think, however, that generally, young ladies are too sensible to practise so absurd a habit. I do not see so very many instances now, although still some. A small waist is doubtless a beauty, if it is natural; but if there is any pinching to produce it, it will soon destroy what other beauties there may be:—firstly, by pressing on the heart and lungs, it will increase the number of inspirations, and the rapidity of the cir-

culation; from this we may have a reddened face or feature,—as a red nose; the hands and feet swell, by arresting the easy and natural return of blood to the heart; by pressing on the stomach and liver, we have indigestion, with all the painful and disagreeable symptoms in its train. Hysteria, and even epilepsy, I have known produced by it, and other evils too numerous to mention here, except that many a parent's hopes have been blasted by its ill effects.

If tight lacing is commenced very young, the person may get so used to it, as positively not to be aware of the cause of all these symptoms; and when told of it, deny the fact.

If a section be made of the body about the waist, it is found to be somewhat flattened before and behind; it is not perfectly round, like a pillar. It is the desire of the *modiste* to make this kidney-shape as nearly a circle as possible; to do this, the sides have to be pressed in and rounded; there is a space above the hips and below the ribs, which, being elastic, without bones, will allow of this. If the pressure, then, is confined to this space, it will not interfere with the rise and fall of the ribs and respiration; but if it is too great, it will cause dwindling of the muscles of the trunk, and the viscera will be pushed upwards upon the heart and lungs. Stays should consist of the bone in front and the two behind as at present, connected over the hips and round the space beneath the ribs, by some unyielding material in the form of a belt; there should be no bones at the side, but the remaining part of the corset should be of some elastic tissue, which may

support slightly, and yet yield to every movement, this would do no harm, but would be rather beneficial to the wearer, as it would in no way impede thoracic respiration, but rather increase it; on the other hand, it would, to a certain extent, prevent abdominal respiration, by preventing the descent of the diaphragm. It is useless to attempt to put down stays altogether; they have too firm a hold upon Fashion's votaries; but to mitigate the evil is within the power of every one. It appears folly to continue the practice of tight lacing, when the danger is pointed out and acknowledged by all; still there are a few who may not be aware of the effects produced; to those few, very few I trust, these words are addressed as a warning;—remember the symptoms caused by it, and cease whilst there is yet time. The subject of dress is almost inexhaustible; but I have said quite enough, if it be attended to and carried out, to create a great revolution, so that I will go no further at present, lest in the mass of matter there should be found no precious stone to treasure up.

I must say a few words upon the beard and moustache before closing the subject. Hair has been placed upon the face of the male for some good purpose—Why, then, shave it off? It protects the neck and cheeks from cold, and acts as a species of respirator,—preventing dust and dirt from entering the mouth; and from the exposure to the air which men have to undergo, it is doubtless given them as a protection from any ill effects arising from it. Those who are most exposed—sailors, for instance,—have most

hair ; and in a climate like ours, either our natural *comforter*, or an artificial one must be worn in the winter.

CHAPTER V.

“Then, a soldier ;

Full of strange oaths, and bearded like the pard,

Jealous in honour, sudden and quick in quarrel,

Seeking the bubble reputation even in the cannon's mouth.”

A MAN has now arrived at the time of life when he is to exert his energies. He has to lay a solid foundation for future success or greatness. It is between twenty-five and thirty-five years of age that a man really labours : he is now aware that life is not a game ; that he must, if he expects to take a place in the world, work for it ; and that this is the time for laborious application. If he labours with his limbs and strength, he is now strong and active ; if with his brain, it is vigorous, and eagerly absorbs knowledge ; and although, perhaps, according to the present constitution of society, a professional man has not now so much lucrative business as he will have at some future time, still he must now show what he is, study his profession, and *compel* the public to see his merits. I shall therefore, under this head, make a few observations

ON EXERCISE.

Exercise is the use of the various voluntary muscles, and therefore may be divided into as many forms as

there are sets of muscles. By exercise, the circulation is more rapidly carried on, either locally, when the exertion is partial, or generally, when all the muscles are more or less used. When the exercise is general, as in walking, the whole system participates, the minute capillaries are filled with blood, the secretions are more active, the appetite is improved, the spirits enlivened, and the tone of the body and mind elevated. This is what is aimed at, and exercise, judiciously used, will be found one of the best preservatives of health. To retain our muscles, exercise is required, as we may see in the instance of a paralysed limb: in this case the muscles are in perfect health; if the normal nervous power were restored to them, they would immediately answer to the will; but we see that if the paralysis continues, the muscles dwindle and shrink, until they are found at last to have degenerated into a trace of fat; but if, on the contrary, these muscles are daily galvanized, and the circulation thus kept up artificially—if the patient at the end of a certain time regains the nervous power, then these muscles will respond to the will, and he can use the limb; but if this had not been done, he would, although with nervous power, have no muscles on which to act, and remain a cripple for life. Again, to make muscles, exercise is required. By constant use, the muscle is increased in bulk, as in the arm of the blacksmith, the leg of the opera-dancer, the cheeks of the glass-blower, or trumpeter. The involuntary muscles are doubtless increased and kept in health in the same way, although so different in anatomical and physiological characters. We know that digestion is

impaired; that the sedentary are commonly dyspeptic and hypochondriacal; that secretion and excretion are delayed and languid;—all depending on the sluggish and incomplete state of the circulation from want of exercise. I shall divide exercise into the general and partial, in reference to the sets of muscles called into play.

GENERAL EXERCISE consists of many forms, as—walking, running, riding on horseback, and gymnastics taken as a whole. The best of these, and the most applicable, is WALKING. We do not notice in great walkers any particular development of any set of muscles more than another; the whole body and limbs appear to increase in bulk and firmness, the fat being absorbed at the same time. The capillary circulation is more general and active; the muscles in use assist the heart and arteries, and the blood penetrates more freely the various tissues: hence nutrition, secretion, exhalation, and absorption are carried on with greater vigour; still, nutrition is in the ascendant, and the muscles increase in bulk. The nervous system participates in this general tonicity, and is much invigorated, and we find the brain more active and healthy when the exercise is regular, and not carried too far. If exercise is carried to fatigue, the nervous system suffers, and the brain is consequently not so well nourished, the blood being attracted towards the muscular system; but if we combine mental exercise with bodily, both are equally nourished, and the brain and appendages finding the stimulus, the muscles will undergo much more labour. This may be seen in various ways. A regiment of

soldiers will march a much longer distance, and with less fatigue, with a band, than a shorter without it. A sportsman shooting, will walk a distance, and go through an amount of fatigue, which he will not believe in his power when enumerated to him on the following day, and which he could not possibly do, except under the stimulus of the sport. *Delicate* females can accomplish an amount of sight-seeing which would tire many a man without the mental amusement. Take the simplest example of all : if we go out for a walk with a purpose, how much farther can we accomplish without fatigue, than if we were merely strolling.

Bodily exercise, then, should be as much as possible blended with some form of mental amusement ; it should in no case be looked upon as a duty, or a bore. The reason why travelling is so beneficial to the invalid is, that the mind is continually occupied with some fresh scene, and is taken from the personal ills and cares which corrode it with their continual presence. This is not obtained by mere change of air ; it must be change of air and scene, to procure the entire benefit. The distance to be walked must entirely depend upon the individual ; it should be never carried to actual fatigue. Like the bath, we can always tell whether it is doing us good. For a healthy person, from four to ten miles a day is moderate exercise. This should be regular ; and in this country it must be a very bad day that should prevent it,—with goloshes, an umbrella, and a wrap, 300 days of the year, at least, are applicable for walking exercise. With many there is a disinclination to walk ; this must be

combated with, as it is likely to grow into confirmed laziness; if, however, amusement and instruction combined with it has failed, and the disinclination does not wear away, then, if attainable, RIDING EXERCISE may be substituted. This is only inferior to walking, and, combined with it, exercises almost every muscle most thoroughly. In riding, the large muscles of the thigh and back are more particularly called into play; and those of the legs, arms, and body, not so much used. Riding is an excellent exercise for young *unmarried* girls; for with some it is a species of passion, and is looked forward to and most thoroughly enjoyed; so that the advantages are twofold,—the body is exercised, the mind amused and pleased, and the rider thereby made happy—a very great hygienic aid.

Dancing is a most excellent form of exercise, and, if care is taken that the temperature is the same all over the house, and that there are no draughts, and the young ladies do not wear low dresses, and do not catch cold going home, might be highly recommended; but as it is, I shall not say too much about it.

GYMNASTICS, to the young, should be strictly enjoined by all who have the management of them; they combine every form of muscular play with amusement and enjoyment; they assist growth and development, prevent deformity or contortion, and add greatly to the healthy culture of the young. Too much cannot be said in praise of gymnastics, judiciously supervised.

PARTIAL EXERCISE.—Under this head may be included rowing, pumping, drawing up weights, singing, reading aloud, &c. These are all excellent in their

way, and may be employed as adjuncts to general exercise. To those who have not the use of their legs, rowing, pumping, &c., should be used as substitutes for general exercise, and will be found to add new life to those who have not previously done so. I knew a gentleman who was completely paralysed in his legs, yet, sitting, was a fine specimen of a man, and this was attained by assiduous partial exercise. Singing, and reading aloud, much strengthens the healthy lungs, but care must be taken where the chest is at all delicate, as it may lead to spitting of blood.

PASSIVE EXERCISE, such as riding in a carriage, or wheeled in a chair, is very excellent for those who have not the use of their limbs, or are too delicate, or too weak, to walk; but by the healthy (as it only leads to indolence), it should be avoided. Many a man and woman owe their death to their carriage. Perhaps after an active youth, they take to the carriage in middle life and by over-eating and little exercise bring on various forms of disease, which, if it had not been for their carriage, they would never have contracted.

I shall conclude these observations with Dr. Kitchen's remarks on training :—"The alimentary canal is cleansed by a gentle emetic, followed by two or three mild purgatives, administered at intervals. They (the *athletæ*) are directed to eat beef and mutton, rather under than over-done; no seasoning or sauce is allowed. Broiled meat is preferred to either boiled or roast; and stale bread or biscuit is enjoined. Neither veal, lamb, pork, fish, milk, butter, cheese, pudding, pastry, or vegetables are permitted; chiefly because they are not considered to be as easily assimilated,

and do not furnish as much rich chyle as the diet selected. The training takes place in the country, the necessity of breathing pure air and the strictest temperance being uniformly insisted on. Mild home-brewed ale is recommended for drink—about three pints per day, taken at breakfast, dinner, and supper, not in draughts, but in small quantities, alternately with the food. They who do not like beer are allowed wine and water; in no case are spirits, however diluted, permitted. Eight hours sleep are considered usually necessary; but those who require very active exercise need a longer period of repose. By this mode of proceeding for two or three months, the constitution of the human frame becomes greatly improved. A person who was breathless and panting on the least exertion, and had a certain share of those nervous and bilious complaints which are occasionally the companions of all who reside in cities, is soon enabled to run with ease and fleetness; the restorative process proceeding with healthful regularity, every part of the constitution is effectively invigorated.

CHAPTER VI.

“And then, the justice ;
 In fair round belly, with good capon lined,
 With eyes severe, and beard of formal cut,
 Full of wise saws and modern instances,—
 And so he plays his part.”

A MAN having arrived at that stage of life when he may be a candidate for the important duties of an alderman, or magistrate, is, both from the authority of Shakspeare and the experience of the present time, usually looked upon as a high and luxurious feeder. He is now relaxing from his most arduous and tedious engagements, leaving them to younger and more energetic men, and applying himself to public affairs, more as an amusement than a calling. When men congregate upon this sort of business, stimulating diet is required, to enable them to accomplish it. Our ministers incline to a light fish dinner at Greenwich; our citizens to a heavy turtle feed at Guildhall; the magistrate in Shakspeare's time, to a venison pasty in Eastcheap. I shall therefore, under this head, examine into the important subject

OF FOOD AND DIET.

Pereira has written a treatise of 532 pages upon food and diet; and yet, in his preface, “greatly regrets its necessarily limited extent.” What can I say, therefore, in apology for the few pages I allow for the subject;—merely that even these, if acted upon, would benefit the health of the community incalculably, and

the dyspeptics and hypochondriacs would be much fewer than they are at present. The chyle, from which our bodies are daily renewed, is composed of albumen, oil, and salts. These are derived by imbibition from the chyme, or digested food, of the stomach. It necessarily follows that food as nearly as possible resembling the chyle is the most nutritious, and easiest of digestion; but the stomach requires much more than the actually nutritious part of the food, to dilute it, and to act upon; therefore much of the food we eat is not absorbed, but passes out—cast forth as useless,—after having answered the purpose of a succedaneum to the stomach. The most nutritious and simplest form of food is milk; this, we see, can satisfy the cravings of hunger, is perfectly nutritious, and supplies all that is required for the development and growth of the young animal. Milk, then, may be considered a model food; and when it is analysed, we find that it is composed of albumen, oil, sugar (a kind of oil), and salts. This is all that is required. Meat and vegetables, although not resembling milk at the first analysis, ultimately, after the process of digestion and cell-development and growth, are simplified to the same elementary principles. The food of adults is derived from the animal, vegetable, and mineral kingdoms; and there is no doubt that if there were any other kingdoms, that they would be ransacked, to find a new condiment, or dish, for exhausted epicures. The animal kingdom gives us fish, flesh, and fowl, besides a few reptiles, and amphibia. Meat, being more allied to our nature, and ready to enter into the putrefactive or disruptive

stage, is easy of digestion, although, not being easily soluble, it takes some time to pass through the process. Vegetables, on the other hand, have a tendency to acid fermentation, and being easily soluble, do not supply the stimulus to the stomach that meat does. These two forms of food being, as it were, opposed in their actions, are the best species of diet when conjoined; they each counteract the tendency of the other—the former to costiveness, the latter to looseness. Meat is heating, vegetables cooling; so that our diet should consist of both. As I have before said, much of what we eat is not used for our nourishment. The stomach is a distensible bag, and can be made in time to hold almost any quantity; if, therefore, we accustom ourselves gradually to eat always a little more than we want, in time we shall eat three or four times as much as is required; and the stomach will be so overloaded as to cause various forms of disorder, if not disease. In the natural and healthy condition of the stomach, it can digest a moderate mixed meal in about four hours; in the young and growing it is now ready for more; therefore children, and young people, should be fed every four or five hours; but adults, who only require repair of waste, an hour or two's rest after the four hours is beneficial. With them the meals should not be so often—every five or six hours. The quantity of food taken at each meal should be regulated by the appetite, which is the declared wish of the system for food. A perfectly healthy appetite can also discriminate the food that is required for the exigencies of the body; but the appetite is so frequently depraved, either by habit, or disease, that it

must not always be relied upon. Children require more food than adults; those of active habits than the sedentary; and the old very little. But I think it may be taken as a rule, that the great majority of those who can obtain it, eat twice as much as is really necessary for them, and this not through gluttony, or because they feel to want it, but through habit, and because it is placed before them, and their appetites are stimulated by condiments, sauces, hot pickles, liqueurs, &c. This is all very well now and then, when you go out to a large dinner, and make up your mind to a feed; but at home simplicity and moderation should be the order of the day. Rich made dishes, pastry, creams, and the whole tribe of indigestibles, should be as carefully eschewed as if they were poison, —and they are slow poisons to many, rising up in judgment, in disturbed rest, sallow skin, head-aches, bilious attacks, and blue devils *ad infinitum*.

The nourishment contained in animal and vegetable food is precisely of a similar character, the same proximate principles being found in each; thus, we have animal fibrine and vegetable fibrine, albumen, caseine, oil, sugar, &c.; the chief difference being, that it requires a much greater bulk of vegetable food to supply the same amount of nourishment as a very much smaller quantity of animal. The blood formed from meat, therefore, is richer and more stimulating than the more watery and saline vegetable-elaborated blood. Much, however, depends upon the character of the climate. In the cold North, the natives live almost entirely on flesh and oil; in temperate climates a mixed diet is used; and in the tropics, fruit and

vegetables are the chief food. From this we may learn to regulate our diet by the articles in season, being sure that that which Nature supplies for our use is the most adapted to our wants; and that the proper time to eat animals, fish, game, vegetables, and fruit, is when they are in season, and not, as is too frequently the case, when they are forced, by artificial means, to an unseasonable maturity. There are a few very important rules respecting our conduct before, at, and after meals, which may be considered here. Fatigue, whether mental or bodily, immediately before a meal disturbs the digestive function; the stomach participates with the other parts of the system in the exhaustion, and its function is thereby impaired. A little rest, therefore, before eating is desirable. Hence the wisdom and advantage of appropriating half an hour to any light occupation—such as dressing—before sitting down to dinner. While at meals, eat slowly, masticate thoroughly, drink occasionally, but in small quantities, and cease eating as soon as a feeling of satisfaction is perceived. If the meal is a moderate one, repose after it is not required, slight exercise conducing to healthy and rapid digestion; but if the stomach is overloaded, then half an hour or an hour's rest is needed, to allow it to collect the vital energies upon itself, enabling it to accomplish the extra labour imposed upon it.

I shall now proceed to examine the various articles usually employed as food.

ANIMAL FOOD

Consists of butcher's meat, bacon, poultry, fish, eggs

and milk, game, &c. Of these, mutton and beef are most easy of digestion, and most nutritious. When broiled, they take from three to four hours to pass from the stomach; boiled and roast a little longer. Pork and veal are less easy of digestion, and should only be partaken of occasionally. Bacon is a nutritious food, but being very rich, small quantities only are required, and much bread eaten with it. Venison, being very easy of division into fibres, is excessively easy of digestion, as is also most game. Lamb is a nourishing food, agreeing with most people. Poultry:—Chicken meat is nutritious, and the least stimulating of all animal food. It is often retained on the stomachs of invalids when other meats are immediately rejected. Ducks and geese:—The flesh of these birds contains much fat, is very rich, and difficult of digestion. Game birds are usually considered very nutritious and digestible.

FISH

Is less nourishing than meat, but containing phosphorus, is a very excellent addition to the preceding. Salt-water fish are better than fresh; and amongst these, the herring, sole, haddock, flounder, and whiting are the most digestible and nutritious; salmon, turbot, mackerel, and cod are less so. Cayenne pepper and salt should always be eaten with fish, but butter and the various sauces used with them only increase the difficulty. Dried, salted, and pickled fish are very indigestible. The raw native oyster is the most nutritious of fish, and is an excellent form of food. Oysters agree with almost all; are mild, cooling, and

slightly laxative, and may form the principal ingredient of a meal; there are few articles of diet more wholesome and nutritious than the raw oyster: a little pepper should be taken with them. A cooked oyster is the exact opposite of the raw, and should be avoided. Lobsters, crabs, and other shell-fish are generally difficult of digestion. Eggs, raw and slightly boiled—three minutes or less—are easy of digestion, and very nutritious; but when over-boiled, or fried in grease, become decidedly indigestible. Milk, the natural food of the young, is consequently a very important article of diet, the properties of which should be understood. Cow's milk is an opaque, white, emulsive liquid, with a bland sweetish taste, and a specific gravity of about 1.030; the latter property is subject to considerable variation. When recently drawn from the animal it is slightly alkaline. Under the microscope it appears to consist of myriads of globules, floating in a serous liquid. These instantly disappear by solution, on the addition of a drop of caustic alkali. These globules consist of butter, and contain no caseum. Being specifically lighter than the liquor in which they are suspended, they rise to the surface, carrying with them some caseum, thus forming the cream. The average specific gravity of cream is 1.024. By agitation the globules unite to form butter; the residue, butter-milk, consists of caseum, serum, and a little butter. Skimmed milk,—specific gravity about 1.0348—if left standing, readily acquires acid properties, with white coagula, curds. If the prepared stomach of the calf, rennet, be added to it, this change is immediately effected, the

coagula being termed caseum. The remaining liquid, whey, yields upon evaporation, sugar of milk, lactic acid, and some salts. Butter consists of three fats—stearine, oleine, and butyrine; is very nutritious, and in small quantities easy of digestion; fresh more so than salt. Milk is frequently unfit for food,—being derived from diseased cows. This is very important to be known, when young children live almost exclusively upon it. The characteristics of good milk are, that it should be quite liquid, and not viscid or sticky,—containing no lumps; it should not become thick upon mixing with ammonia, and should form a flocculent precipitate with acetic acid, but not coagulated—made lumpy—by heat. A lactometer, a small glass instrument easily procurable, points out the quantity of cream contained: this in London varies greatly, from four to twenty-three per cent., by measure. The afternoon milk usually contains less than that supplied in the morning; and it also varies much at different seasons of the year, from the different food upon which the animals are fed. In spring and summer it is the purest and most wholesome, the food being most suited to the wants of the animal. In winter it is not so good. The milk of sheep and goats is richer and more stimulating than cows' milk, and less easy of digestion; asses' and mares' milk is sweeter, and contains less butter and caseum. Cheese should not be taken as the principal ingredient of a meal; it is very slightly nutritious, and in large quantities very indigestible and constipating; as a condiment, it appears by its stimulating properties to assist the digestion of other food.

VEGETABLE FOOD

May be divided into the farinas—wheat, barley, rice, &c.; the roots—potatoes, carrots, &c.; the leaves—cabbages, salads, herbs, &c., and fruit. To the farinas we owe our staple articles of food—bread, flour, rice, tapioca, sago, and many others. Bread made from wheat flour, with good yeast, and eaten stale, is almost the only article of food which, taken alone, will prolong life to any considerable time. New bread, hot rolls, bread containing alum, are all deleterious, and should be avoided. Bread at a low price, and very white, always contains alum, as the bakers make use of it to whiten and make firm inferior bread, which is more liable to turn acid than the better sorts. Potatoes are commonly used in bread making. They assist fermentation, and render the bread lighter; as they contain less gluten, they are less nutritive than wheat flour, but in other respects their use is unobjectionable.

Unfermented bread possesses several advantages over the ordinary fermented bread; in its manufacture both time and trouble are saved, and all risk of vitiating the bread by the use of inferior yeast, or by carrying the fermentation too far, thereby avoided. It is well adapted to the use of invalids and dyspeptics. In its porosity and lightness it is superior to biscuits, since it is more easily permeated and acted on by the gastric juice. The following is a very good formula:—

Flour, one pound,
 Sesquicarbonate of soda, forty grains,
 Cold water, half-a-pint, or more,
 Muriatic acid (*purified*), fifty drops by measure,
 Powdered white sugar, a teaspoonful.

Intimately mix the soda and the sugar with the flour, in a large basin, with a wooden spoon. Then gradually add the water, in which the acid has been previously mixed, stirring constantly, intimately mixing the ingredients. Divide into two loaves, and put into a quick oven immediately. If any soda should escape the action of the acid, it causes a yellow spot, which, however, is more unsightly than detrimental. The sugar can be omitted if thought desirable. Be careful in procuring the purified acid, as that sold in the shops contains various impurities, amongst others, arsenic. Cakes and puddings, generally, are not so digestible as bread. Barley meal is used to mix with flour, for the food of infants, as it is said to be slightly laxative. Barley-water is bland and nutritious, and is a nice drink for invalids. Rice very much resembles wheat in its properties, but is not so nutritious. Peas and beans are nutritious, but require some other aliment to assist them to support life; for although containing a very large proportion of nitrogen, the phosphates are in a great measure wanting; they cause flatulence, especially when old; they are stimulating and heating. The roots—potatoes, carrots, turnips, &c., are very nutritious, but all require much boiling to make digestible; raw they are not suited for the stomach, and the potato is to a very slight degree poisonous. Potatoes alone will support life for a considerable time, and may be placed next in order to bread for that purpose; they are antiscorbutic, containing citric acid; next to the farinas and meat, they are the most nourishing and digestible form of food. The carrot and parsnip are more nutritious than the turnip. Cabbage, cauliflower, &c.,

contain much sulphur; they are very nice autumn vegetables, as they purify the blood; they should be eaten with vinegar to assist their digestibility. Lettuce and other salads are useful in the summer; they are cooling, but being very slightly nutritious, should merely accompany other food. Lettuce is slightly soporific. Fruit:—Ripe fruit, in small quantities, is highly beneficial, and a little should be eaten every day when *in season*. Unripe fruit in any quantity is liable to produce diarrhœa, on account of the quantity of free acids contained in it. Perfectly ripe fruit—grapes, plums, peaches, oranges, &c., are very useful food, and should be always eaten when procurable; they never, *when ripe*, produce diarrhœa, and may be safely and advantageously taken during an epidemic. This observation does not apply to the fruit usually sold in the streets to the poor, as much illness is caused by partaking of it;—many children annually losing their lives from indulging in it. The sale of fruit in the streets should be under the supervision of a competent officer. Poisonous fruit and berries are occasionally sold and bought by mistake. Dried fruits are seldom nutritious, and their skins are indigestible, as are also, in a less degree, the skins of all fruit. Fruit and vegetables are not so easy of digestion as bread and meat, but are required by the economy, containing many elements suited to the particular season when they become ripe: thus, in summer we do not require such heavy food as in winter, as the surrounding temperature does not abstract the animal heat, and less is required to be formed; therefore, oils, spirits, and carbonaceous substances are suitable for the winter, but not for summer. The quantity of

food must always be the same, for the stomach to act upon, but the quality different.

DRINKS.

Liquids are required by the system to dissolve the food, and to supply the constant waste. The quantity varies according to the season, the food eaten, and the amount of exercise. Drink should never be taken before a meal, but small quantities during, and a little after. Unnatural thirst is not assuaged by much drinking; the desire should, therefore, be resisted as much as possible, between meals, and indulged in but moderately at meals. Natural thirst should be quenched, as it is the desire of the system for liquid, to supply some unaccustomed waste.

Drinks may be divided into alcoholic, and drinks made from meat and vegetables: the alcoholic, into beer, wine, and spirits. Beer—the Englishman's natural beverage—is the most wholesome and nutritious of all drinks, if the publicans would only allow it. Beer made from malt and hops contains alcohol, starch, sugar, gum, extractive and bitter matter; fatty, aromatic, and glutinous matters; lactic acid, carbonic acid, salts, and water. It is quite impossible to say what the beer bought of a publican contains, as each has his own fancy adulteration. Liquorice, linseed, caraway, grains of paradise, cayenne pepper, sulphate of iron, are only a few of the least noxious. The actual poison, *cocculus indicus*, which is extensively used to produce a feeling of unnatural intoxication, should be put a stop to, as it is highly detrimental to the nervous system, and makes a most wholesome

drink a liquid poison. People do not want to be intoxicated when they drink beer; they want to assuage their thirst, and be nourished: if they want to get drunk, let them take spirits, to their hearts' content; but let an Englishman have his beer pure. Beer is actually required by the exigencies of the climate. The same quantity of wine, at the same price, would not be fit to drink; and spirits are detrimental to health, if taken regularly. Let us, then, have good and cheap beer. The different beers brewed, suit all constitutions. The India bitter ales are suited to the sedentary and corpulent, and to those of capricious appetite; also to those recovering from fever, and asthenic complaints; the stomach, at this time, is very delicate; and the tonic and aromatic qualities of good bitter beer are more suited to it than any form of medicine or drink. I generally recommend Allsopp's bitter ale, the composition and purity of which I am best acquainted with; it is better bottled than draught, on account of the contained carbonic acid—preventing nausea, and quieting vomiting.

Porter and stout are usually considered more nourishing than ales, and are suited to those of spare and active habit,—to labourers, to women nursing, and sufferers from exhausting discharges. Mild home-brewed ales are the best for every-day drink at meals, when there is no excessive labour, or exercise. If beer produces drowsiness, it should be discontinued—as the system does not require it. To those who take no exercise, beer is too heavy a drink, and should not be taken. Beer should not be kept very long, as it

undergoes an acid fermentation, becoming hard, and alcoholic. The pale ales are brewed so as not to pass through this fermentation—they are made with more hops, and contain less sugar. WINE contains more alcohol, but less nourishment than beer. Wines may be divided into the acid, the sweet, and the alcoholic. The acid wines are those of Germany, and some parts of France,—they are the Rhine wines and Clarets; when good, they are palatable, light, wholesome, and suited for summer drink. The sweet wines are the English, the superior forms of Cape, Champagne, &c. English wines, such as red currant and gooseberry, are light and refreshing, and well suited for summer drinks. Champagne is exhilarating, and speedily produces intoxication, which soon passes off. Constantia is syrupy and agreeable, and is the best Cape wine. The alcoholic, dry wines consist of Port—the king of wines, Sherry, Madeira, and Marsala. These, by keeping, become stronger up to a certain time, the sugar they contain becoming slowly converted into alcohol,—tartar with colouring matter being deposited as a crust. After all the sugar has disappeared, the formation of alcohol ceases, and from this period the strength of the wine diminishes, part of the spirit evaporating, and part being converted into acetic acid. Port keeps better than any other wine. Used in moderate quantities, wine quickens the action of the heart and blood-vessels, diffuses an agreeable warmth through the system, promotes the secretions (occasionally, however constipating, Port wine contains tannic acid), augments the muscular force and activity, excites the mental powers, and banishes unpleasant ideas and reflections. Wine,

however, is of the greatest use to those lowered by fever and other disorders, stimulating the vital powers, and enabling the debilitated to feel a desire for, and to digest food that otherwise they would not be able to take. To those who are accustomed to very active exercise, the use of wine is desirable: to the sedentary, full-blooded, and inhabitants of hot countries, it is injurious. Sherry is the least adulterated, and most wholesome of the stronger wines: it is made from Marsala, Cape, and brandy, and flavoured with some real sherry. "Port wine" is made in the docks from *French and Italian reds*, when, after being vatted, and having *jeropiga* added, which consists of a mixture of *elder-berries, logwood, treacle, grape-juice, and brandy*, is sold at a very large increase of price, to a gullible British public, *for rich, old fruity Port*; so I gather from the *papers*. *Real Port wine* is rare, and very dear. Wine is not suited to children; but to the old it is decidedly beneficial.

SPIRITS: brandy, gin, whisky, rum, &c., are most excellent medicines, and are most particularly suited to the ailments of the present time. They are powerfully cordial and stimulant, and, in some cases, are invaluable. Good French brandy is stomachic and stimulant; gin, diuretic; rum and whisky, sudorific. Spirits will sustain the animal heat during exposure to cold; and in such cases are advantageous. The habitual use of spirits is decidedly detrimental; it over-stimulates the stomach and liver, producing various diseases in these organs. Spirit-drinkers lose flesh, and become emaciated and nervous; beer-drinkers, stout and lusty.

DRINKS MADE FROM MEAT, AND VEGETABLES.

The broths I shall speak of presently. Tea, coffee, and chocolate,—useful aromatic drinks. They all contain an active principle, called theobromine. This is a nitrogenous compound, supposed by Liebig to contribute to the formation of bile: it is nutritious. Tea and coffee are powerful sedatives to the heart and nervous system; this is owing to a volatile oil extracted by the hot water. It is a common practice with those who desire nocturnal study, to use tea or coffee; and, on the same principle, they may be used as an antisoporific to the effects of opium and intoxicating liquors. To its sedative influence, also, may be ascribed the relief of nervous head-aches. In colds, warm tea is used as a diluent, sudorific, and diuretic. Green tea is still more powerful in its effects; with some it gives rise to tremors, anxiety, sleeplessness, and most distressing feelings. Green tea is coloured with indigo in this country, and is poisonous: it should not be used, as in no case is it so good as black, and may give rise to very baneful effects. The usual adulterations of black tea and coffee, although frauds, are innocuous; chicory is quite as nutritious as coffee, although inferior in flavour. Much milk should be used with tea and coffee, to soften the astringency; they should be taken in the evening, not being sufficiently nutritious for the morning meal. Chocolate is more nutritious, and does not act so powerfully on the nervous system as the former drinks; it should be made with water, and the milk added, otherwise it cloyes upon the palate; containing in itself much

oil, it is well suited for the morning meal. Cocoa is another preparation of the same nut from which chocolate is made: it is less oily and more astringent than chocolate, and, if well made from the nibs, is a very agreeable beverage.

A FEW WORDS ON COOKERY.

BOILING.—A small quantity of nitrogenous matter is dissolved in the water in which meat is boiled, but it is only slightly nutritious. Beef tea, mutton and other broths, should always have vegetables or bread with them, otherwise they are of very little use. Boiled meat is very wholesome and digestible. With vegetables, the boiling water ruptures and partially dissolves the starch-grains, for without this they would not be acted upon thoroughly by the digestive fluid of the stomach, and would be consequently innutritious; it dissolves the gummy and saccharine substances, and expels the volatile oils. This in the case of the potato is decidedly necessary, as otherwise it would be deleterious, from the noxious matter contained. Baked and fried potatoes are not so beneficial as boiled. Over-boiling abstracts nutritious matter and solidifies albumen, as in the case of the egg, where it becomes hardened and indigestible.

ROASTING is an excellent method of cooking meat. It abstracts the water, liquefies the fat—which partly escapes, coagulates the albumen, but does not appear to produce any change in it, if not carried too far. Meat should not be over or underdone; it therefore should be cooked slowly before a good fire, when it is softened, the flavour improved, and it is made easy of

digestion. Underdone meat is more nourishing than overdone meat; but the happy medium is best in every case, as it is much easier of digestion, and does not produce nausea. Carefully-roasted meat has all the properties of raw meat, and contains the gelatine, which boiled meat does not. Meat for roasting should be kept some time after it is killed, to allow its muscular fibres to loosen their tension and cohesive properties. Few vegetables are roasted.

BROILING effects the same changes in meat as roasting, but more rapidly, so that the gravy of the meat is retained, and the watery parts are not allowed to evaporate, on account of the coating of coagulated albumen, burnt fibres, and fat, formed upon the surface. This is decidedly the best mode of cooking mutton, as it is particularly tender, highly nutritious, and very easy of digestion. Beef does not broil so well as mutton, although it is better than boiling for that meat. It is also an excellent way of cooking fish, far to be preferred to frying.

STEWING deprives meat of much of its nutriment, and it also becomes, under the process, more difficult of digestion.

FRYING is only named to be avoided, on account of the fat used; the influence of heat on fatty substances effects various chemical changes in them, whereby they are rendered more difficult of digestion, and obnoxious to the stomach. Fixed oils give off while boiling an acrid volatile oil, while the fatty acids are set free. The frying-pan should therefore be discarded.

Jellies, made by dissolving the gelatine of flesh

tendons and bones in water, are commonly considered very nutritious, but this is a mistake; they are very slightly so, and although the best—those prepared from calves'-feet and isinglass—are easy of digestion, the common gelatine is innutritious and very indigestible. If taken at all, they should be joined with other food. With reference to other modes of cooking, the less that is said the better. Made dishes, although very palatable, and in many cases delicious, and hard to be resisted, are, as a rule, to be avoided; they only produce dyspepsia, and spoil the taste for plainer and more nutritious fare.

CHAPTER VII.

"The sixth age shifts

Into the lean and slipper'd pantaloon;
 With spectacles on nose, and pouch on side;
 His youthful hose, well saved, a world too wide
 For his shrunk shank; and his big manly voice,
 Turning again toward childish treble, pipes
 And whistles in his sound."

OLD age is creeping on, and we find from the Registrar-General's reports that the changes of temperature and season affect the old most sensibly in regard to their mortality. They get on very well through the summer, but directly the cold weather commences, bronchitis and influenza begin to do their work. I shall therefore, under this head, take a slight glance at

METEOROLOGY AND CLIMATE.

The great majority of ailments and medical diseases are caused by the different meteorological changes; this is, therefore, by far the most important and interesting subject for examination; and I should like to have, and could find matter for, at least a hundred pages, but will endeavour to condense as much as possible. We live, and are more dependent upon the purity of the atmosphere taken into our lungs than upon any food or drink taken into our stomach. If deprived of air, death would ensue in about two minutes; if of food, a strong man might live a week. Air impregnated to a great extent with carbonic acid, would kill in two or three minutes. With the malaria of cholera, people have been known to fall down in the streets, in India, and die instantly. These are extreme cases, but they are not more fatal than an easterly wind, arising at some particular time of year, when colds, bronchitis, rheumatism, influenza, inflammations of different organs follow. Every one has felt the exhilaration of spirits consequent upon a cold, bright wintry day; also the depression and languor produced by hot, muggy, damp weather. These changes in the system can be accounted for by laws over which we have no control, the only power we have being to avoid the causes producing them. These laws I will now endeavour to explain and apply. The atmosphere by which our planet is surrounded, when pure,—which, by the way, it seldom is,—is composed of oxygen, one part (by measure), and nitrogen,

four parts; with more or less aqueous vapour, carbonic acid, ammonia, &c. The weight of the atmosphere upon the surface of the globe is fifteen pounds upon the square inch, and it has been computed that the pressure upon a full-grown man amounts to 30,000lbs. upon the whole body; thus the fluids are retained within the component cells, and not allowed to escape. If the barometer falls, it shows that the atmosphere is lighter, a certain amount of weight is taken from off the surface; thus the fall of half an inch in the barometer would show that 300 lbs. weight had been removed from the surface of the body. A fall in the barometer is usually caused by an increase of watery vapour in the atmosphere; thus, by the removal of weight from the surface, the superficial capillary vessels are gorged with blood, and perspiration is induced, but on account of the air being already charged with watery vapour, evaporation does not take place; hence languor, fatigue, and lowness of spirits. A cold bath, followed by an artificially dried atmosphere, will remedy these feelings, produced by a fall in the barometer and a damp atmosphere. If, on the other hand, the mercury rises, the weight of the atmosphere is increased. This is usually accompanied by a dry wind; there being little moisture in the air, there is greater pressure on the capillaries, evaporation is rapid, and the spirits are exhilarated. This is the usual effect upon the majority, and the healthy; but upon the delicate, and those who may have some peculiarity of constitution, the effects produced may be precisely opposite. Rapid atmospheric changes are always injurious to the public health; these gene-

rally arise from changes in temperature and quantity of watery vapour.

HEAT.—The effects of heat upon the human body are various and interesting. I shall merely consider them in connexion with climate, and not in reference to heat artificially produced. The primary effects of heat upon the human body are—increased circulation, respiration more rapid, and temperature raised; increased exhalation follows, which, upon evaporation, produces cold; thus the normal temperature of the body is retained; however, the secretions from the lungs and kidneys are decreased proportionately. Prolonged heat produces relaxation of the solids; the muscles become atonic, and languor and disinclination to exertion is the consequence; the vital force appears to be more rapidly consumed under the influence of an elevated temperature. The diseases predisposed by heat are:—fevers, diarrhoea, dysentery, cholera, and liver complaints. These may require other causes to excite them—a sudden chill, foul drains, acid food or drinks, &c.

COLD.—The primary effects of cold are—decrease of circulation and respiration, exhalation, and secretion checked. If the cold be only moderate, reaction soon takes place, and exhilaration is the consequence; if, however, the cold be excessive or prolonged, or acting upon the enervated or old, vitality is gradually lowered, torpor and asphyxia follow. The diseases induced by cold are—pulmonary affections, scrofula, rheumatism, apoplexy and paralysis, acute inflammations, and, in fact, the great majority of disorders. Heat and cold seldom by themselves are the cause of

disease; it is in combination with damp, malaria, and mental excitement, that they are found to predispose and to excite disease. Sudden change from damp heat, to cold, is the most fatal form of combination; the body is relaxed, with secretion actively going forward, and consequent exhaustion, when cold superinduces a fresh call upon the vital powers, which generally succumb, and a determination of blood to some vital organ is the consequence, producing an inflammation of low form.

The seasons affect the different ages in different ways. Thus, the spring affects all: colds and coughs are prevalent, and almost all suffer alike. In summer the chief mortality is amongst the young: fevers and low inflammations are the prevailing type. In autumn, again, all suffer: diarrhoea, dysentery, cholera choose their victims from every age. In winter, the aged are the victims: pulmonary disorders, apoplexy, and paralysis choose amongst the old. Wind greatly modifies the effect of temperature upon the body. Thus, two successive days whose temperature, as indicated by the thermometer, may be the same, shall produce—the one, a sensation of warmth, on account of the calm, still condition of the atmosphere,—while the other creates a feeling of cold, from the presence of wind. The humidity and purity of the atmosphere are greatly modified by the motion or calmness of the air.

The atmospheric pressure varies periodically and occasionally. The barometer attains its maximum height at 9 a.m. and 11 p.m., and its minimum at 4 a.m. and 4 p.m. The cause of these oscillations

most probably depends upon the temperature. The occasional variations of atmospheric pressure seem to be intimately connected with the direction of the wind. The mean amount of variation is, in England, about twelve lines; and this quantity has its monthly oscillations. The atmosphere may be considered to be composed of a series of concentric strata, the density of each decreasing as it is removed from the surface of the globe. Whilst an equilibrium exists, the atmosphere is calm; but if from any cause it is overthrown, then there is a movement of the air, from one place to another; this movement of the air is termed the wind. Among the chief causes of this motion of the air may be mentioned—the action of the sun, and the changes of temperature and pressure; the action of the moon and tides; the rotatory motion of the earth; and the hygrometric and electric states of the atmosphere.

Temperature is the most common cause of aerial currents. When one portion of a mass of air becomes more heated than those parts by which it is surrounded, it is rarefied, and therefore lighter, so that it ascends to a higher level, whilst the adjacent colder and denser air rushing in to supply its place, streams of air tend from all points, towards that from which the air has been rarefied. As, however, there are many strata to the atmosphere, there may be several currents of wind; thus, there may be a wind passing along the surface of the earth in one direction, and another higher in the opposite direction. This is often noticed at sea, the ship going in one direction, impelled by a current of wind at the surface, and the

clouds working up to meet you, impelled by an opposite current of wind. Nothing has so great an influence over health as a change in the wind ; consequently, in the air we breathe, and in different parts of the globe, there are different winds, which bring health or disease on their wings, according to the direction from which they proceed. With hot winds, Siroccos and Harmattans, we have nothing to do ; but with the north-east and east winds of England, much : these occur during the whole year, chiefly in the winter and spring ; they are caused by the current of air passing from the North Pole to the Equator, deflected by local causes in different directions. This cold, and most distressing wind to most people, gives rise to every variety of disorder ; it generally affects the barometer greatly, suppresses perspiration, producing cold and inflammations, and is the bane of every one. The causes of the salubrity of many places, such as Hastings, and the Undercliff, Isle of Wight, arise from their being sheltered from these winds by the conformation of the land, and being open to the south and west. Although such situations do not suit every one, still they are the most healthy for the mass ; and in choosing a habitation and neighbourhood, it should be as much as possible sheltered from the north-east and east. The best preventive against the ill effects of these winds is a warm, dry atmosphere,—not merely a warm atmosphere, but warm and dry. Numbers of the diseases from which we suffer are instigated by damp, especially among children. Beware, then, of much washing of floors ; carpets are a great improvement, and

should be made use of where practicable. Amongst the poor, dry-polishing, as in France, would be salubrious. It has been observed in hospitals, during the prevalence of a most contagious disease—hospital gangrene—that nothing has arrested the spread of the malady so quickly as leaving off washing the floors, and removing all moisture and damp.

Diseases frequently run one into another, from no other cause than some change in the weather. I remember a case, which struck me very forcibly at the time. During the mild weather of December, 1854, a young girl I was attending, suffered from the influenza kind of epidemic then prevalent—with purple congestion of throat. She was much relieved by a stimulating form of treatment, with nourishing diet. She was getting well, when the weather suddenly changed to hard frosts, and cold easterly winds; in a few days her symptoms had entirely changed. She was now laid up with rheumatic fever. The blood, in this case, contained some morbid product, which had to be eliminated, the points being determined by the epidemic tendency, or rather by the meteorological peculiarities of the season. Nothing can illustrate my meaning better than the different forms of treatment to which our parents were accustomed, and those in vogue at present. Through some peculiarities of atmosphere, telluric, electric, or otherwise, the diseases they suffered from were all of an acute form, relieved by bleeding, and the so-called antiphlogistic regimen: at the present time, no one is ever bled, and the regimen is generally of a nourishing and stimulating form. This does not arise from any difference in the

man, but from external meteorologic phenomena over which we have no control. The climate of England, although very changeable, knows no great extremes of temperature. Thus we find the average winter temperature is 40° , and summer 62° ; and the extremes of heat and cold are confined to about 70° . Thus an equable temperament is induced, no extremes of passion are shown, and, from this reason, we have derived our national character—steady progress; phlegmatic, as our more lively neighbours call us: *they* suffer from much greater extremes, being much hotter in summer, and colder in winter. From recent discoveries and experiments, we have reason to suppose that there is a constituent of the atmosphere not always present, and when so, in variable extent, that has a most extraordinary and powerful influence upon the circulating and nervous systems of mankind. This ingredient, discovered by Professor Schonbein, is called by him, OZONE; it is a most powerful oxidising agent, and is intimately related to electricity, as it always accompanies that fluid in the atmosphere; it is an ingredient in the atmosphere most suited for man to breathe; if it is in too great quantity, the tendency is to over-excitement; if, on the other hand, the percentage is too low, the spirits are depressed, and the diseases are of an asthenic type. The study of this important fluid is, however, as yet but in its infancy; much may be expected from its further pursuit.

The soil on which a house is built is very important, in reference to damp. Sand, gravel, and chalk are dry, in the order in which they are placed, from allowing the surface-drainage to percolate through

them. Clay, on the contrary, retains the wet, and, consequently, is not salubrious, but frequently very unhealthy. Marshes, swamps and fens are particularly unhealthy, principally when they are drying under the action of the sun. The malaria created gives rise to fevers, agues, &c. Elevation above the level of the sea, or river, is an all-important element in health. By this means we obtain easy sewage, freedom from noxious emanations (which always choose low, damp, undrained, unventilated situations, to stagnate in), rapid and thorough ventilation, frequently a purer air; and, in fact, almost all the advantages required for the position of a human habitation; if this is, again, sheltered from the north-east and east winds, then we have all we want.

LIGHT

Is much required by the young to instigate them to healthy growth. It is considered by many, combined with dry, pure air, to be a preventive, and almost a cure for scrofula, rickets, &c. It is a powerful agent for health, and should be encouraged, where possible. Morning light is considered more stimulating to nutrition than afternoon; and to rise early is certainly most beneficial to health.

Such, then, are a few of the most important meteorological phenomena affecting health; they exert most powerful influences upon the human frame. A series of ages of an African climate would change Europeans to Negroes, and *vice versa*; and an easterly wind, after hot, damp weather, may destroy thou-

sands. This subject is of all-importance, and is now receiving from a few scientific men that attention which is its due; but the *public* want more information. A series of clear, yet concisely written volumes, digests of standard works upon various scientific subjects, popularly applied to everyday concerns, would be a boon to all classes, and would be read with avidity by the mass.

CHAPTER VIII.

“ Last scene of all,
That ends this strange eventful history,
In second childishness, and mere oblivion ;
Sans teeth, sans eyes, sans taste, sans every thing.”

WE have now only to consider the uses and abuse of sleep, in reference to its requirement, for health. There are many proverbs in reference to sleep. There are historical notices of the very little sleep some great men have been satisfied with; but the question is—How much sleep do hard-working people want? That is—How much do they need for the due preservation of health? I think that eight hours' sleep is what is required by the generality of people. Go to bed at ten in summer, and eleven in winter, and rest till six in summer and seven in winter; this, of course, though a very excellent rule, will require much modification to apply to different classes, whose occupations will not allow of it. Sleep should be regular, unbroken, and whenever completed, the person should rise

immediately, as it is weakening to lie in bed after sleep has terminated in the morning. The custom of lying in bed dozing in the morning, or breakfasting in bed, as too many of our ladies are, I am afraid, accustomed to do, is very pernicious; the solids are relaxed, and the whole system enervated. Loss of rest and sleep is excessively destructive to the normal state of the brain; by carrying it to any great extent, imbecility or mania might be produced. It is far worse than too much sleep.

Mr. Gardner, the so-called hypnologist, gives a receipt for procuring sound and refreshing slumber at will; of course, it is only applicable to the healthy. "Let the patient turn on the right side, place the head comfortably on the pillow, and then slightly closing the lips, take rather a full inspiration, breathing as much as possible through the nostrils. The lungs are then to be left to their natural action. The attention must now be fixed upon the action upon which he is engaged. He must depict to himself that he sees the breath passing out from his nostrils in a continuous stream, and the very instant he brings his mind to conceive this, apart from all other ideas, he sleeps." During sleep the exhausted system is restored, and the vital energies renewed; the process of assimilation goes on more perfectly and without interruption; the nervous system of organic life having the circulation at its command, the brain and spinal marrow being at rest, repair is carried on more thoroughly than during the time of brain and muscular activity. The growth of the body advances; and the mind, exhausted by over-work, is refreshed and

invigorated. Such are the advantages of "tired nature's sweet restorer, balmy sleep," which must never be neglected; and as the night and early morning air is generally deleterious, particularly in marshy districts, the night is the proper time for sleep. The bed-room should be large and well ventilated, and if there are no draughts, the bedstead should have no curtains,—at all events, they should be merely at the head of the bed. The absurd practice of sleeping with the head under the bed-clothes or pillow cannot be too strongly condemned, as fresh air is much required at night, when growth and repair are advancing. Sleep should not be indulged in during the day by a healthy adult, as it is enervating. Infants and children require much sleep, as also, to a less degree, do young people who are growing. As a rule, drugs should not be taken to produce sleep, as, except in the hands of a medical man, they are dangerous, and cannot be recommended. Regular bodily exercise is the best aid to sleep.

L'ENVOI.

READER, ponder over what you have read, and if satisfied with its truth and incalculable importance, both to yourself and offspring, and to the public in general, lend your assistance to hygiènic reform, and support those endeavouring to benefit you. If you are a householder in a poor neighbourhood, lay out a few pounds, to give health and prolonged life to your tenants; they will amply repay you by willingness and *ability* to pay their rents. If you are thinking of building houses, have them built on scientific principles of ventilation, warming, and drainage. If you are an influential man in your parish, sit in the vestry, and do not object to a little trouble, if you can, by your superior knowledge and attainments, give good advice for the benefit of your fellow-parishioners. If you are a tradesman, do not poison your customers by adulterated food. But if you are none of these, merely a simple private individual, with no ability to assist your fellow-creatures (albeit such a man, woman, or child, I do not believe to exist), provide for your own health, and you will indirectly advantage your neighbours. Reader—farewell!

RESPIRATORS.

These little instruments are extremely desirable for all with delicate lungs, to be worn in cold bleak weather, in the open air, to prevent its exciting cough, &c.

The air is minutely divided by being strained through a series of perforated metallic plates (which are rendered incorrodible by being coated throughout with Gold), and thus entering the mouth, is easily warmed, and does not cause any irritation to the respiratory organs. This is the plan of the simplest respirator I have seen,—the *ÆTHEREON*, sold by MR. MAW, of 11, ALDERSGATE-STREET, at very moderate prices:—from five shillings a simple one, to twelve and sixpence, let into a woollen scarf.

They might be advantageously used by all on leaving theatres, balls, &c., and entering the night air. Many a cold and attack of bronchitis might be avoided by their use.

USEFUL PRESCRIPTIONS AND RECEIPTS FOR DOMESTIC USE.

No. 1.

Alterative Aperient Powder for Infants.

℞ Hyd. c. Creta, gr. ij.

Pulv. Rhei, gr. iij.

Ft. pulv. : to be taken the first thing in the morning, in a little honey or sugar.

No. 2.

Cough Mixture for Children.

℞ Emulsio Amygdalæ, ℥xi.

Potassæ Nitratis, ℥ss.

Vini Ipecac. ℥i.

Syr. Tolutani, ℥iv.

Ft. mist. : according to age, from a teaspoonful to a table-spoonful, occasionally.

No. 3.

Alterative Aperient for Adults.

℞ Pil. Hyd. Chlor. co. gr. iij.

Ext. Coloc. co. gr. v.

Ext. Hyoscyami, gr. iij.

Ft. pil. iij. : to be taken at bed-time—to be followed by No. 4, the next morning.

No. 4.

℞ Pulv. Potassæ Sulph. gr. xxv.
Pulv. Rhei, gr. xx.
Spt. Ammon. co. f ʒss.
Mannæ Opt. ʒij.
Tr. Cardam. co. ʒj.
Aquæ Cinnamomi, ʒxiv.

Ft. haust.

No. 5.

*Alterative and Cooling Aperient Draught, suitable for the
Spring and Autumn.*

℞ Sol. Mag. Sulph. ʒij.
Tr. Cardam. co. ʒss.
Syr. Rhæados, ʒvj.
Infus. Rosæ, ʒiv.

Ft. mist : a fourth part to be taken the first thing in the morning.

No. 6.

Warm Aperient Aromatic draught.

℞ Pulv. Rhei, ʒj.
Decoct. Aloes co. ʒss.
Spt. Ammon. co. ℥ xv.
Aquæ Cinnamomi, ʒiss.

Ft. haust: to be taken when required.

No. 7.

Dinner Pills, suitable for Indigestion.

℞ Aloes Barb. gr. xij.
Pip. Cayenne, gr. xvijj.
Pulv. Rhei, gr. xij.
Ext. Gent. gr. xvijj.

Ft. pilulæ xij : one to be taken every day at dinner-time.

No. 8.

For Nervous Headaches.

℞ Spt. Ammon. co.
Spt. Lavand. co. ana ʒij.
Tr. Hyosciami, ʒj.
Mist. Camphoræ, ʒvss.

Ft. mist. : a fourth part to be taken when required.

No. 9.

Tonic Mixture.

℞ Ferri. Ammon. Cit. ʒss.
Aquæ Cinnamomi, ʒviij.

Ft. mist. : a sixth part to be taken twice or three times a day.

No. 10.

Embrocation for Sprains.

℞ Liniment. Camphoræ co. ʒiv.
Tr. Opii, ʒss.
Liniment. Saponis, ʒj.

Ft. embrocatio.

No. 11.

Diarrhoea Powder, to be kept in a bottle for use.

℞ Pulv. Conf. Aromat. ʒvj.
Pulv. Conf. Opiat. ʒiiij.
Pulv. Cretæ, ppt. ʒj.

Ft. pulv. : a teaspoonful to be taken every four hours (until the diarrhoea ceases), in a little warm brandy and water.

No. 12.

Saline Sudorific Powder, for Colds.

℞ Pulv. Ipecac. co. gr. x.

Pot. Nitratis, gr. xij.

Pot. Bicarb. gr. v.

Ft. pulv. : to be taken in bed, in some hot sherry and water.

No. 13.

Stimulating Gargle.

℞ Tr. Capsici, f ʒij.

Oxymellis, f ʒss.

Aquæ, f ʒviiss.

Ft. garg. : to be used occasionally.

No. 14.

Evaporating Lotion.

℞ Spiritus Vini Rect. f ʒj.

Aquæ, f ʒxv.

Ft. lotio : to be applied with lint.

No. 15.

Poppy Fomentation.

℞ Extract. Papaveris, ʒiij.

Aquæ ferventis, f ʒxij.

Misce : to be applied with flannel.

No. 16.

Chilblain Liniment.

℞ Liniment. Camph. co. f ʒvj.

Tr. Lyttæ, f ʒiij.

Liniment. Saponis, f ʒj.

Ft. liniment. : to be rubbed in before the fire, night and morning.

Liebig's Cold Extract of Meat, for Invalids.

In the preparation of a nutritive diet for invalids, the great object is the production of a material which should contain all the constituents requisite for the formation of blood, and which, at the same time, should be capable of assimilation with the least possible expenditure of the vital force. This object has not hitherto been accomplished. Beef-tea, which was the nearest approach to it, did not contain the albumen of blood, and was also wanting in some constituents necessary for the formation of healthy blood. The new diet contains apparently all the constituents that are requisite for the nutrition of the human body, and it is assimilated with the greatest ease by the organs of digestion. The new diet may be described as a cold extract of flesh, and is prepared as follows:—Half-a-pound of beef, free from fat, or the same weight of fowl's flesh—in both cases recently killed—is chopped very fine, and well mixed with one pint of distilled water, to which four drops of hydrochloric acid and one-eighth of an ounce of common salt have been added. After the mixture has stood for one hour, it is thrown

upon a fine hair sieve or piece of calico, and the liquid allowed to drain off without pressure. The first portion of the liquor is usually turbid, and must be returned to the sieve until it runs clear. When all the liquor has drained off, a quarter of a pint of pure water must be gently poured, in small quantities at a time, upon the residual minced flesh, and allowed to run into the liquid previously collected. There is in this way obtained about three-quarters of a pint of the cold extract of flesh, having a red colour, and a pleasant soup-like taste. It is to be administered cold to the invalid—a tea-cupful at a time. It must on no account be warmed, as the application of even a very slight heat causes its decomposition, and the separation of a solid mass of coagulated albumen. This cold extract of flesh is not only much more highly nutritious than ordinary beef-tea, but also contains a certain quantity of the red colouring matter of blood, in which is a much larger proportion of the iron requisite for the formation of blood particles. The hydrochloric acid also greatly facilitates the process of digestion. The cold extract of flesh had been employed with great success both in the hospitals and in private practice at Munich, especially in certain stages of typhus and cholera, in which, owing to the absence of all energy in the digestive organs, there was the greatest difficulty in sustaining the strength of the patient. A very striking case occurred in the family of Professor Liebig himself.

A young lady, who, in consequence of an inflammatory disease, could not take solid food, was supported exclusively upon this diet for two months,—in fact, until she had perfectly recovered; and it was remarked that during this time she evidently increased both in flesh and strength. There could be no doubt that a supply of this

admirable strength-sustaining agent would be of the highest value in our hospitals in the East, where hundreds of our wounded and suffering soldiers are lying in the last stage of exhaustion. The extract is admirably adapted for such a purpose—its preparation being so exceedingly simple, and not even requiring a fire. The disintegration of the flesh could also easily be effected on a large scale by a simple machine, which any mechanic would easily invent and construct.

Professor Falkland's Milk for Infants.

One-third of a pint of new milk is allowed to stand until the cream has separated; the latter is removed, and to the blue milk thus obtained, about a square inch of rennet is to be added, and the milk vessel placed in warm water. In about five minutes the curd will have separated, and the rennet—which may again be repeatedly used—being removed, the whey is carefully poured off, and immediately heated to boiling, to prevent its becoming sour; a further quantity of curd separates, and must be removed by straining through calico. In one quarter of a pint of this hot whey is to be dissolved three-eighths of an ounce of milk sugar; and this solution, along with the cream removed from the one-third of a pint of milk, must be added to half a pint of new milk. This will constitute the food for an infant of from five to eight months' old, for twelve hours—or, more correctly speaking, it will form one-half of the quantity required for twenty-four hours. It is absolutely necessary that a fresh quantity should be prepared every twelve hours, and it is scarcely necessary to add, that the strictest cleanliness in all the vessels used is indispensable.

Extemporaneous Raspberry Vinegar.

Dissolve half a pint of raspberry jelly in a pint of vinegar; this, when diluted with water, affords a pleasant cooling beverage for allaying thirst in fevers and colds, and for a summer drink.

FINIS.

LONDON:
SAVILL AND EDWARDS, PRINTERS, CHANCERY-STREET,
COVENT GARDEN.

